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## TRAUMATIC AND INFLAMMATORY BRAINS—WITH PNEUMOGRAPHIC DEMONSTRATION OF SOME AFTER-RESULTS\*.

CHAS. R. RAYBURN, A.B., M.D.,  
Central Oklahoma State Hospital,  
NORMAN, OKLAHOMA.

Brain tumor, brain abscess, the traumatic brain without fractured skull as well as with fracture, neurosyphilis, and other lesions of the brain, apparently are making the "organic brain conditions" more frequently encountered. The fact that they are frequently encountered permits the underlying pathology of each type of condition to be better understood. By means of the roentgenray and the injection of air, or other foreign material, into the cerebro-spinal fluid spaces, they may be more accurately diagnosed, and hence, better opportunities of instituting the proper treatment.

There are now some forty to fifty principal types of nervous and mental diseases, and most of these types have various subdivisions. Of this immense number there exists only four, which, up until the present, have been considered as "functional" diseases. As in diseases of the other systems, there is a tendency to feel that back of each of these four there may be some general psysico-chemical or organic disturbance. The four are epilepsy, psychoneurosis, manic depressive, and dementia praecox. The present day conception of epilepsy is rapidly changing and proof is fairly conclusive that all convulsions are in reality symptoms, in the same way that headaches and diarrhea are symptoms. Conclusive proof is available that most convulsive and epileptic states are organic in origin, while there are few that are toxic, as, angioneurotic edema, eclampsia, and some of the allergy reactions.

Now obstruction of normal passageways in an organ or system of organs results in

pathology, usually of the parenchyma of that organ. This obstruction may be complete, or it may be continued partial. It may be at any point in the passageway. The sole requirement to cause disease is "obstruction." Well does the genito-urinary man know the resulting pathology of any obstruction along the urinary tract. What happens when there is obstruction of the bile ducts, the pancreatic ducts, ducts of the salivary glands, or even obstruction of the intestines? What is the result of the heart, either in aortic stenosis, or in generalized peripheral arteriosclerosis? What is the result from obstruction of the portal circulation? The resulting pathology of each of these is fairly well understood by all. Obstruction, either complete or partial, in the passageways of cerebro-spinal fluid, usually results in a disease process of the principal tissues of the central nervous system, namely, the brain tissues. Should the obstruction be at the point of exit of the fluid, a generalized atrophy, due to back pressure of the parenchyma, will result. Should the obstruction occur within the cerebrum, a localized strophy might result.

Cerebro-spinal fluid liberated into the ventricles escapes through the foramen of Magendie and the two foramina of Luschka into the cisterna magna, thence to the other cisternae at the base of the brain, and then passes up over the cortices to the pacchionian bodies. From the foramina as listed above, it may pass into the subarachnoid spaces surrounding the spinal cord. The point of exit of the fluid takes place principally through the pacchionian bodies into the superior sagittal sinus, to the lesser extent through the arachnoid villi around the exit of the various peripheral nerves from the subarachnoid system, and to the least extent through the walls of the adjacent perineural spaces. Disease processes involving the arachnoid villi and pacchionian bodies might prevent exit of the cerebro-spinal fluid, and we would have resulting sequelae in the

\*Read before Grady County Medical Association April 4, 1930, in meeting at Chickasha, Oklahoma.

central nervous system corresponding to sequelae resulting in obstruction in other systems. One of the most common causes of diseased villi and the pacchionian system has been demonstrated to be red blood cells and their pigment. Thus trauma of the central nervous system resulting at birth, or blows on the head, or from trauma of any origin, even from the spinal puncture, should be treated with caution. During these days of car accidents, etc., considerable thought should be given to this type of injury. Now senility, and arteriosclerosis, as well as meningitis, alcohol, lead poisoning or any toxic condition, might cause disease of these tissues which normally permit exit of the fluid.

Thinking some of the difficulties encountered in diagnosing these brain conditions, that some of the diagnostic procedures used, and some of the prominent symptoms of such conditions might be of general interest, there is here very briefly given a few reports with comments made on respective cases. Service which the X-ray can give in pneumography is demonstrated.

It is well to emphasize that in working with neurological patients in State hospital, problems are present which the physician doing private practice is not forced to deal. In other words, should a patient with brain tumor call upon a physician in private practice, the examiner is assured of some co-operation, and he also has present relatives of the patient who can give some information. On the other hand, in our State hospital, the patient with the brain tumor enters the hospital with either strictly mental symptoms, or if some other symptoms are present, the mentality of the patient is so that he cannot give correlated information as to his subjective symptoms, no history is he able to give, and sometimes he enters in a comatose state. Again, the relatives seldom accompany the patient, and here the other valuable source of important history is not accessible.

Diagrammatic representation of the normal passageways of the cerebro-spinal fluid as drawn by Temple Fay, professor of neurosurgery, Temple University, Philadelphia. (Fig. A), shows the ventricular and cisternal systems, the arrows pointing the course of the fluid, as the greatest quantity from these systems passes up over the cerebral cortex to the principal outlets, the pacchionian bodies. Possibili-



FIG. A.

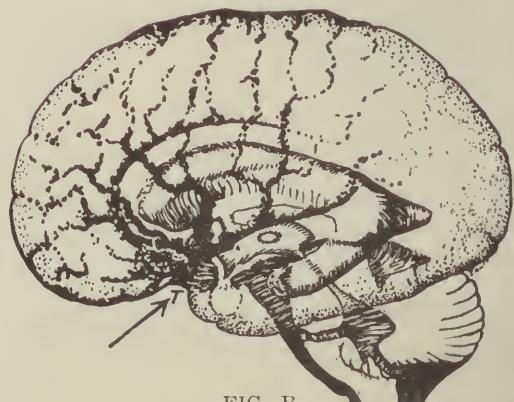


FIG. B.

ties of obstruction at various points in the pathways and resulting pathology may be easily demonstrated in Fig. A. For example—obstruction at the pacchionian bodies would result in an accumulation of fluid adjacent to them causing pressure atrophy of the cortex with an external hydrocephalus (Figs. 6 and 7) while obstruction of the foramina of the fourth ventricle, i. e., Magendie and Luschka, would result in an internal hydrocephalus and pressure atrophy of all brain structures due to pressure from within outward.

Fig. B shows the relationships of various passageways of the fluid to each other, as well as to the brain structures. At "T" adhesions, arachnoiditis, etc., could cause sufficient obstruction of the fluid, which should pass over the cortex and to the principal outlets, that there would result accumulation of the fluid within the ven-

tricles, cisterna and spinal subarachnoid regions giving a communicating hydrocephalus (see Fig. 8).



FIG. 1.

NORMAL VENTRICLES (Lateral View)

*Ventriculography* (Direct displacement of ventricular fluid by air injection.)

In this position, the two lateral ventricles with respective posterior and anterior horns are well shown. The intraventricular foramina, third ventricle, cerebral aqueduct and upper portion of the fourth ventricle may be seen.



FIG. 2.

NORMAL VENTRICLES-(Anterior-Posterior View).

*Ventriculography*—The “Butterfly” effect of two normal lateral ventricles is demonstrated. The proximity of the two ventricles to each other anteriorly, with septum pellucidum between, may be noted. The divergence of the ventricles posteriorly is dimly seen.



FIG. 3.

NORMAL FLUID SPACES

*Encephalography* (Injection of air into lumbar or cisterna magna subarachnoid spaces, permitting it to pass up over the cerebral cortices as well as to pass into the ventricular system through the foramina of Magendie and Luschka.) This represents almost normal appearance. All markings over the cortex show slight enlargement. Those in the occipito-parietal region are somewhat increased as compared to the normal. There is questionable slight bulging or hydrocephalic effect of the anterior horns.

#### EPIDEMIC ENCEPHALITIS-PSYCHIC SYNDROME

In Fig. 6 note the generalized “shrinkage” of the cortex, the increased number and size of fluid passageways over the frontal lobes and the increased number of passageways over the occipital lobes. The small round areas of air can be explained only by the enlargement of the perivascular spaces due to “atrophy” of the adjacent cerebral tissues.



FIG. 6.  
ENCEPHALOGRAPHY  
(Lateral View)



FIG. 7.  
ENCEPHALOGRAPHY  
(A.P. View)

In Fig. 7, (A.P. view) the extensiveness of the cortical shrinkage is well shown. In both views outlines of various gyri may be seen. In both it will be noted that the ventricles did not fill with air.

These two figures demonstrate typical "external hydrocephalus"—probably due to obstruction in pacchionian bodies as result of encephalitic inflammatory process.



FIG. 8.  
AN ENCEPHALOGRAM—BIRTH PALSY AND  
EPILEPSY (Age of Patient 35)

No air marking over the cortex can be noticed. There exists no demonstrable space between the brain surface or pia mater and the arachnoid membrane. Evidently the pacchionian bodies have never functioned, and there probably is a compensatory action by the arachnoid villi in the spinal regions.

The enlarged, filled ventricles (the air having been injected from the lumbar region proving the foramina of the fourth ventricle are open) give a nice demonstration of "communicating hydrocephalus."

The larger or left ventricle is farther away from the photographic plate, and hence there is more of an apparent inequality of the ventricles than really exists as the A.P. view (not shown) demonstrates.



FIG. 9.

## ENCEPHALOGRAM—POST-TRAUMATIC DEMENTIA

About 120 cc. is the maximum average quantity of fluid in normal individuals. Removal of fluid in this patient was discontinued after 178 cc. was displaced by air because the patient began to complain, and I was not sure of the existing pathology. In the ventricle nearest the film may be seen some remaining fluid in the posterior horn, however, the end of the horn is well filled with air.

No air markings over the cortex may be seen and this with the communicating hydrocephalus (air having passed through the foramina into the ventricular system) is diagnostic of obstruction of fluid pathways at the base of the brain. (See Fig. B with notes.)

The patient, a successful business man, had onset of neurological and mental conditions since sustaining a fractured skull June, 1928. One is justified in diagnosing the obstruction as traumatic inflammatory adhesions between the pia and arachnoid.

This individual could probably be kept from rapid deterioration by frequent withdrawal of cerebral-spinal fluid from cisterna magna.

FIG. 10.  
ENCEPHALOGRAMS  
(A.P. View)FIG. 11.  
ENCEPHALOGRAMS  
(P.A. View)  
POST-TRAUMATIC DEMENTIA

In Fig. 10 the assymmetrical but enlarged and hydrocephalic ventricles are

well shown, the ventricle on the right showing the fluid which was not removed, is a good demonstration of what may happen with improper technic. In both Fig. 10 and Fig. 11 it is interesting to compare the space occupied by the ventricles to that occupied by brain tissue. In Fig. 11 it is noticed that the ventricle on the right side comes out to the surface of the brain.

To realize from these two pictures the amount of hydrocephalus with resulting brain destruction which can take place in about two years time as a probable result from bleeding into subarachnoid spaces should make one think of directing treatment, immediately after an injury, toward keeping blood out of these spaces.



FIG. 12  
ENCEPHALOGRAM—POST-TRAUMATIC  
AMENTIA

Not a good X-ray exposure. Two encephalographies were done on this patient within a period of two weeks. At the first one only about 70 cc of fluid could be displaced and the X-ray failed to reveal any air within the ventricles. It was decided that some error in the technic had occurred and hence a second attempt ten days later. At the second encephalography, again approximately only 70 cc of fluid could be displaced. Again the X-ray failed to reveal any air within the ventricles, and the picture as given was identical with the first. Normal air markings are noticed except over the extreme frontal pole. Here localized atrophy with outline of three gyri may be distinctly seen, and this

eight months after injury. Because of the failure to obtain more than 70 cc of fluid, and failure of air to enter the ventricles, after two attempts, the possibility of obstruction of the foramina of Magendie and Luschka with a resulting internal hydrocephalus was considered. Puncture of ventricles and ventriculography was decided upon with result as shown in Fig. 13 and Fig. 14.



FIG. 13.  
VENTRICULOGRAMS—POST-TRAUMATIC  
AMENTIA



FIG. 14.  
VENTRICULOGRAMS—POST-TRAUMATIC  
AMENTIA

Ventriculograms of same patient as in Fig. 12. The possibility of internal hydrocephalus was disproven, both lateral and A.P. views showing normal size and outlines of the lateral ventricles. Evidently the contour of this individual's skull and its relationship to the within brain structures was such that air not only failed to pass through the foramina into the fourth ventricle, but fluid did not pass out of the ventricular system while doing two different encephalographies. The possibility of just improper manipulation to suit this individual case yet remains, but Dandy states that failure of air to enter the ventricles, normally occurs.



FIG. 15. (Lateral)  
VENTRICULOGRAMS-NEUROSYPHILIS WITH  
APHASIA



FIG. 16. (A.P. View)  
VENTRICULOGRAMS-NEUROSYPHILIS WITH  
APHASIA

The posterior horn did not fill, probably, because of improper technic.

Note the generalized "moth-eaten" appearance of the entire cranium.

In the lateral view (Fig. 15) the contrast in size of the lateral ventricles is not so clear as in the A.P. view (Fig. 16).

In the A.P. view, due to the atrophic condition of the left hemisphere, one sees an attempt to compensate for the shrinkage, with a resulting unilateral hydrocephalus and a slight displacement of both ventricles toward the atrophic (left) side. The symmetrical butterfly appearance of the ventricles is disturbed with the normal angulations in contour of the left ventricle gone.

#### IMPORTANT POINTS IN DOING PNEUMOGRAPHY OF THE CEREBRO-SPINAL FLUID SPACES

1. Study your patient sufficiently to be sure that pneumography is indicated and know when to use ventriculography and when to use encephalography. These two procedures are complementary and each has its own indications and contraindications.

2. Ventriculography should be used as a last resort to make a diagnosis and only after all symptoms and all other diagnostic procedures have failed to localize the lesion. The percentage of fatalities reported in present literature from this one procedure averages from eight to ten percent. This procedure should be attempted only by the brain surgeon, and because of the possibility of an emergency arising, he should be prepared for surgery before starting the procedure.

3. Encephalography should be done with caution in any organic condition suggesting tumor or marked intracranial pressure. It should not be done when the fluid pressure is over 20 mm. of mercury (patient in prone position) nor when symptoms indicate that a lesion, more especially a tumor, exists within the posterior part of the third ventricle, the aqueduct of Sylvius, the fourth ventricle: or within the cerebellum, the medulla, the peduncles, or the pons. This procedure is indicated principally in diagnosing supratentorial lesions, and lesions of the cerebral cortex, as in post traumatic conditions. The mortality from this procedure in 1529 individuals as reported in literature, has been 1.2% and most of the fa-

talities have been when tumors were present.

4. In doing encephalography, a constant pressure of the cerebro-spinal fluid should be maintained, and, at the close of air injection, the spinal manometer should record the same or slightly lower than it did at the beginning of the procedure.

5. Know the normal contour of the cerebro-spinal fluid spaces and the relationships of the various pathways of the fluid. This is essential before one can know how to manipulate or place the patient to insure complete filling of the spaces with air. It is also necessary before one can properly interpret the roentgenray picture.

6. Be sure the entire fluid system has the fluid well displaced by air.

7. Exact alignment and proper placing of the patient is essential to taking a picture which may be accurately interpreted.

#### SUMMARY AND CONCLUSIONS

1. After results of a few acute and chronic inflammatory, as well as traumatic brain conditions, as demonstrated by pneumography, have been given.

2. Trauma and infections may affect the brain tissues and cause sequelae, but individuals may recover from the acute conditions and later, due to involvement of the passageways or outlets of the cerebro-spinal fluid, develop various types of "water brain" with their respective symptomatology.

3. It is probable that alcohol, drugs and various toxins, as well as red blood cells originating from trauma, and exudates from any type of inflammatory process of the nervous system, may so affect the outlets of the cerebro-spinal fluid that convulsions or brain degeneration may ensue.

4. All head injuries should be considered as dangerous and in this day of so many traumatic brains, treatment should be instituted by the attending physician with the idea in mind to prevent future symptoms developing in his patient. In the light of recent experiments and investigations of Weed, Bagley, Sharpe and histo-pathological examinations of the pacchionian system by Winkleman and Fay, procedures which should be instituted to combat bleeding into the subarachnoid spaces are here outlined briefly.

- (a) Disturb the patient as little as possible.

- (b) Be in no hurry about an X-ray picture. When the patient becomes quiet, for records and for added information, an X-ray picture may be done.
- (c) Elevate the head of the bed.
- (d) Place ice caps to the head.
- (e) Altho as yet a debatable question, spinal drainage every six hours, or as often as bloody fluid is evident, should be of benefit in prevention of sequelae.
- (f) For several days, to reduce intra-arterial pressure and cerebral edema, limitation of fluid intake, and saturated magnesium sulphate by mouth or rectum may be given.
- (g) Glucose, (50 per cent to a saturated solution) in quantities of 50 to 150 cc intravenously, is the best preparation to reduce intra-cranial pressure, but it, as well as intravenous hypertonic salt solutions, yet remains to be proven proper therapy. One can see that by temporarily increasing intra-arterial pressure that there might result more bleeding into the subarachnoid spaces when administering the intravenous solutions immediately after the trauma.

#### LOCALIZATION OF SPINAL CORD TUMORS\*

NED R. SMITH, M.D.  
TULSA

I propose to discuss some of the important essentials in the localization of tumors of the spinal cord. I will use three cases to give point to my notion that careful localization by such means as may be required in any given case is an absolute prerequisite to surgical intervention. All data in these cases not bearing on the matter of localization is purposely omitted.

*Case 1.* T.M., male, age 39, single, by occupation an editorial writer. He complained of paraesthesia in the right leg; awk-

\*Read before the Section on General Surgery, Gynecology, Obstetrics and Urology, Annual Meeting Oklahoma State Medical Association, Shawnee, May 28, 1930.

wardness in use of right foot and outer two fingers of the left hand and a sharp pain at times in the supra-spinous area of the left scapula. The first symptoms had been noted two years previously and they were vague pains and paraesthesia in the right lower extremity. He soon had difficulty in using the small finger of the left hand at the typewriter. Within the past year he had noticed a decrease in pressure and pain sensitivity in the right lower extremity and that when he leaned against the lavatory with the anterior aspect of the thighs that the contact did not provoke a sensation of coolness in the right thigh. The sharp intermittent pain in the upper left scapular area had been present for only a month, but was rapidly becoming more severe.

The neurological examination showed increased reflexes in the right leg and left arm with right Babinski. All forms of sensation were lost on the right side except deep pressure to the nipple line. There was decreased sensitivity to pinpoint and motor weakness in the left ulnar area. The examination would indicate that the tumor was in the lower cervical cord. The pain in the left supra-scapular area pointed to the third cervical segment as the location of the tumor. The patient was observed for one week with a persistence of the pain and no change in objective examination findings. He was then sent to a surgeon who removed a tumor which was lying anterior to the third cervical segment. Recovery was uneventful and after one year nearly complete return of function had taken place. This case is presented because it involved nothing more than history and clinical examination. The localization was made on the subjective location of a root pain. Therefore, the first essential in the localization of spinal cord tumors is a careful history; a history that goes back to the earliest symptoms and covers the course of events in a minute, searching manner. Such an inquiry may disclose information that will definitely localize the tumor as in the case cited.

*Case 2.* Mrs. G., age 46, a saleslady by occupation. She complained of a paralysis, numbness, and stiffness in the lower extremities. The first symptoms had appeared 12 years previously and had been a feeling of heaviness and dullness in the right foot that required four years to reach the groin. In the meantime the left leg had been similarly but less severely involved.

The spastic paralysis of the lower extremities had started eight years ago, or four years after the earliest symptoms and had slowly progressed to paraplegia but one month earlier. The examination may be summarized by stating that it indicated a nearly complete transverse myelitis at the somatic level of the umbilicus anteriorly. This corresponds to the ninth dorsal cord segment, which would be opposite the sixth dorsal vertebra. Then allowance would have to be made for the spino-thalamic fibers for pain and temperature which travel from one to three cord segments before decussation. The highest level indicated would therefore have been at the second or third dorsal vertebra. This patient had no pain at any time. The findings pointed to an intramedullary lesion and were recognized as capable of leading to gross error in localization. An X-ray examination of the entire spine added nothing positive to the data. However, it is well to establish the status of the spinal column by X-ray plates so that in the procedures presently to be described one has ruled out any possible sources of error of interpretation. The patient was subjected to combined puncture of the cisterna magna and lumbar spine. The latter was done first and a yellowish fluid with increased globulin was obtained. Before withdrawing the fluid the pressure was taken with the Queckenstedt apparatus. This measures the pressure directly in centimeters and allows direct observation for respiratory oscillations and changes in pressure by jugular compression. The normal pressure of the cerebro-spinal fluid on the Queckenstedt apparatus is ten to twelve centimeters and upon jugular compression it will promptly rise to about double the normal reading and then slowly subside. The primary pressure in the patient under discussion was four centimeters and the respiratory fluctuation was barely discernible. Jugular compression caused the pressure slowly to rise to six centimeters. The return to the original pressure was very slow. Thus evidence of a rather high grade subarachnoid obstruction or block of the flow of the cerebro-spinal fluid was obtained. Fluid was withdrawn for laboratory examination and one cubic centimeter of ascending lipoidal was injected into the subarachnoid space. The puncture of the cisterna magna was then done according to Ayer's technic and one cubic centimeter of descending lipoidal was injected. The patient was then placed in a semi-erect po-

sition and X-ray plates of the spine were taken at once. The descending lipoidol was arrested in caplike fashion opposite the body of the sixth cervical vertebra; another plate taken twenty-four hours later showed it remaining in the same position. Because the ascending lipoidol had been wrongly labelled it in fact was descending and was found in the lower end of the dural sac. Laminectomy of the sixth and seventh cervical vertebrae was done and an inoperable intra-medullary tumor was uncovered.

This case demonstrates the usefulness of spinal puncture. The presence of block was clearly evident by the Queckenstedt test. The xanthochromatic fluid with increased globulin is also pathognomonic of a block and would in this or in any similar situation warrant one to proceed with the injection of lipoidol in the expectation that the X-ray plates would show it held up by the tumor. I am aware that some men have opposed both spinal puncture and the use of lipoidol for localization. In my opinion the use of these aids to localization in properly selected cases is entirely justified.

*Case 3. B.N.* The last case to which I will call your attention is that of a single girl age twenty who had been paraplegic for one month. Her trouble had begun one year earlier with numbness in the left foot, which had progressed to the lower abdomen and was still slowly ascending. The gait had been involved shortly after the first symptom of numbness appeared; she had required aid in walking five months after onset and had been bedfast for one month. Two weeks before my examination she had noticed some numbness in the left hand and awkwardness in reaching for objects. There had been occasional aching in the thigh muscles, but no history of true root pains could be obtained. The neurological examination showed strong evidence of an incomplete transverse myelitis, certainly not lower than the upper dorsal region. The symptoms in the left hand strongly suggested a cervical lesion and I advised observation and repeated examinations. The spinal fluid had been taken before I saw her and was entirely negative by laboratory examinations. I was informed it flowed normally so there was strong presumptive evidence against block.

My advice to make haste slowly was apparently not acceptable, so a surgical consultant repeated the spinal puncture, but

made no tests for evidence of partial or complete block. He injected lipoidol and obtained by X-ray an oblong faint shadow opposite the twelfth dorsal vertebra. He interpreted this as evidence for the location of the tumor and did laminectomy on the twelfth, eleventh, and tenth dorsal vertebrae and found a normal spinal cord.

There was no indication for the use of lipoidol in this case. After all it is only an aid in localization in such cases as present indications for its use; the principal one of which is some evidence of block. The shadow obtained was too faint to arouse more than a weak suspicion that it was lipoidol, also its shape was quite atypical. The clinical examination of the patient showed beyond any doubt that the tumor must be at least seven to nine vertebrae higher than the location of the shadow, and as in the first case there was subjective symptomatology indicative of a still higher level. Therefore, it was gross error to expect to find a tumor in the lower dorsal vertebra unless the patient had multiple tumors. The same rule holds here as in all other diagnostic procedures; the laboratory help must fit the clinical findings or be rejected.

The lesson of this last case is obvious; it represents misplaced confidence in a localization procedure that should not have been attempted for the sufficient reason that there was not present the conditions that would give one any hope of worthwhile results.

In summary then the localization of tumors of the spinal cord is done by the aid of a good history and careful repeated neurological examinations. The data obtained must be carefully interpreted in terms of the anatomy and physiology of the spinal cord. Many cases will require X-ray examinations, spinal puncture with careful study of the pressure of the cerebro-spinal fluid and lipoidol injections if conditions are established that give a proper basis for its use.

Seldom does the course of events lead so directly and positively to the localization as in the first case. More often one is required to study the patient carefully by all means at our command. That errors will occur occasionally is inevitable; we should maintain a sufficiently critical and informed state of mind so that mistakes like that of the last case can not recur.

## COMPRESSION FRACTURES OF THE SPINE\*

I. W. BOLLINGER, M.D.  
HENRYETTA

A compression fracture of the spine may be defined as a fracture affecting the weight-bearing portion of the spine, and is a crushing of the spongy bone tissue from above downward, or below upward, with consequent loss of the normal size, outline and position of the body or bodies of the injured vertebrae.

Injuries of the back have long been such a fertile resource to those claiming damages as a result of an accident, that the surgeon looks askance, and rightly so, at any claimant who complains of pain, tenderness, limitation or motion, etc., in the back. However, the honest patient should not be so regarded even when his symptoms appear to be out of all proportion to the severity of his injury. Therefore, every individual who has been subjected to an injury to his spine, should be carefully X-rayed. The spine should be X-rayed laterally, or at least diagonally, to get any reduction in height of the bodies of the vertebrae anteriorly. Rotations, as well as lateral displacements, are best shown in the anterior-posterior view.

In certain coal mining sections of Oklahoma, compression fractures of the spine almost invariably occur in the following manner; the laborer at his work is in a stooping position and the force is applied from above downward, which force is usually the falling of rock, varying in amounts from a few pounds to several tons. The shoulders are driven toward the knees. The pelvis being fixed, and the ribs fixing the dorsal spine, a lever is formed above and below, and the body of the vertebrae is crushed between these opposing forces.

There are three locations in the spine where a compression fracture is prone to occur; first, the upper cervical region; second, the upper dorsal region, and third, the dorso-lumbar region. The higher fractures in the spine are usually fatal and for all clinical purposes may be disregarded. The fractures occurring in the lower part of the spine are not so serious. About two-

thirds of all the compression fractures occur in the lower spine.

The recognition of a compression fracture may be very difficult, unless an X-ray is available, or the compression fracture is extreme, since it frequently happens that these fractures are not complicated by any loss of cord function. This is due to two factors; first, the effect on the spinal canal is merely to reduce its length without a break in the continuity, or any lessening of its caliber; second, because compression fractures so often occur below the level of the lumbar enlargement of the cord.

### DIAGNOSIS

The symptoms of a compression fracture of the spine vary from no external evidence whatever, to total flaccid motor and sensory paralysis, together with visceral paralysis and loss of reflexes. A certain opinion cannot be expressed within the first four days as during that period the symptoms are apt to increase or decrease. A better prognostication can be made after the lapse of a month. There is only one certain method of determining the exact condition, and that is by laminectomy and laminectomy is not often called for in compression fractures.

The most frequent symptoms are; pain, increased on motion and irregularity of the line of the spinous processes, the usual deformity being kyphosis. One symptom being common to all vertebrae fractures is shock, manifested at the seat of the body lesion.

The chief symptoms depend upon the amount of injury done to the spinal cord. If the cord has been damaged, motor and sensory paralysis, either partial or complete will be found up to the level of the lesion. The anesthesia corresponds usually to the motor loss, with an area of hyperesthesia just above the level of the lesion; this hyperesthetic zone is the best single index of the height of the damage in any case. Trophic signs are generally present.

In a complete transverse lesion, the history of the onset of symptoms is sudden. The symptoms appear immediately following the injury, whereas if a partial injury is present, an interval may have elapsed before the symptoms develop. The appearance of the symptoms is gradual rather than sudden. In a complete transverse lesion, the motor paralysis is found to be complete and the paralyzed muscles are

\*Read before the Section on General Surgery, Gynecology, Obstetrics and Urology, Annual Meeting Oklahoma State Medical Association, Shawnee, May 28, 1930.

flacid; whereas, if the lesion is a partial one, the motor paralysis is limited. Some muscles of the limbs are paralyzed, others are not, and there is often noticed muscular spasm in the affected limbs. In a complete transverse lesion, sensation is entirely gone; in a partial lesion some sensation is felt. The knee jerks are usually absent in a complete lesion; in the partial lesion they are usually present. In the transverse lesion, visceral paralysis is complete; in the partial lesion, visceral paralysis is not always present. Priapism, sweating and involuntary muscular twitching are seen more commonly in the complete lesions.

#### TREATMENT

The treatment of compression fractures of the spine is largely the treatment of fractures elsewhere in the body. Splinting the fracture early (splint them where they lie) is very apropos.

In fractures associated with cord injury, the second most important element in the treatment is the aseptic control of the bladder, together with the prevention of bedsores. In the first week, fatality is generally due to the trauma itself, but thereafter it is due to complications of which sepsis is the chief. Therefore, the prevention of sepsis must be one of the primary objects in the treatment.

The next object in the treatment is to relieve the cord from pressure and to replace the fragments and to immobilize the fracture. The cord will be uninjured, slightly injured or seriously injured. If the cord is uninjured, the bony parts may be left untouched or they may be replaced by manipulation. If the cord is injured, the advisability of operative interference will depend upon whether the lesion of the cord is transverse and complete, or whether it is partial. If there are evidences of a transverse lesion, operation is unavailing and obviously illogical, for the cord cannot be repaired. It is therefore necessary to distinguish between the signs of a transverse lesion and those of a partial lesion.

Most cases of bony pressure are due to dislocation of the vertebrae which are remediable by external means, either by backward flexion, suspension by pulley fastened to the chin, or by traction on the head and feet, with the patient in prone position. If the bodies of the vertebrae are badly crushed, little or no impression will be made upon the deformity by external force.

In severe compression fractures—severe enough to do damage to the cord—usually irreparable damage or injury has been done by either a distinct crush of the cord or hemorrhage into the cord. The hemorrhage takes place often at some distance from the seat of the chief lesion, so that even if the seat of the crush of the cord were repaired by operation, damaging lesions would still remain unrevealed. It is also the result of experience that removal by operation of the laminae and spines of the vertebrae in the suspected region of fracture, almost never reveals any remediable condition or affords any evidence of the exact seat of the lesions or their extent. The reason is that the dura at the seat of a crush of the cord, whether partial or complete, remains intact and untorn and that extradural hemorrhage is unusual. After the removal of the laminae, the surgeon is as much in doubt as he was before.

With present knowledge of the pathology of this fracture, and excepting cases of fracture with pressure upon the cauda-equina and pressure where there is a partial lesion of the cord, there can be no doubt that the best treatment for compression fractures of the vertebrae is by the expectant method; immobilization of the part by a plaster-of-paris jacket applied to the trunk, if there is no deformity. If there is deformity, correction of it and immobilization of the spine in the corrected position. The correction of the deformity should be immediate to avoid irremediable softening of the cord from pressure which may occur even within forty-eight hours.

In commenting upon compression fractures, Dr. John B. Murphy once said: "If the injury occurred above the cauda-equina and instantly produced complete annular paralysis of both motion and sensation, it would mean that the cord was completely severed and since the true cord has no power of regeneration there would be no improvement with operation, nor would there be any without operation. Therefore, better not operate."

If, on the other hand, the true cord is not cut, but merely compressed, early operation is much more urgently indicated than when the cauda-equina is compressed, because the cauda is more like peripheral nerves in that it has some regenerative power and early operation is not necessary.

Massage, electricity and other gymnas-

tic methods are all valuable adjuncts in the treatment of the paralyzed muscle and they may be made use of rather early, also splints to avoid foot drop.

#### CONCLUSIONS

1. Early splinting of injuries to the spine is highly important.

2. Many complications such as Kum-mell's disease and hematomyelia, which may occur in compression fractures of the spine, may be avoided or at least minimized by the proper handling of such injuries.

3. All severe back injuries should be carefully X-rayed both anterior-posteriorly and laterally.

4. Compression fractures in the upper part of the spine are usually fatal, irrespective of treatment.

5. Compression fractures as a rule are best treated by the expectant method.

#### OSTEO CHONDRTIS DEFORMANS JUVENALIS

S. R. CUNNINGHAM, M.D., F.A.C.S.  
Professor Orthopedic Surgery University  
of Oklahoma  
OKLAHOMA CITY

Why should a rare condition such as osteo chondritis deformans juvenalis be considered before a group of general surgeons? In the first place, we know now that it is not such a rare condition as we once believed it to be. With the advantages afforded by the examination of great numbers of cases of crippled children, and the improved and more general use of the X-ray, we are diagnosing more accurately the obscure cases, and Perthes disease falls into this group.

We are therefore, presenting this paper because we feel that we have been able to study several cases which have a very definite bearing on a most recently mentioned etiological factor—disorder of the glands of internal secretion.

Perthes disease is a bony affection of the head of the femur, with insidious onset and rather mild symptoms, which leads to a lameness and to a very definite deformity of the head of the femur and usually with concomitant changes in the acetabulum. It occurs in males more often than in females, and usually between the ages of five and

twelve. It is generally unilateral, but may be bilateral.

*Etiology:* Many etiological factors have been suggested, but no single factor seems to entirely explain the condition which actually exists. The theory of trauma has found many staunch supporters. In a young child the epiphysis of the upper end of the femur is dependent for its blood supply on the small vessels entering its circumference where the head and neck join. Trauma may obliterate these vessels and as a result we get a necrosis of the epiphysis. In supporting this theory we have only to mention the reduction of a congenital dislocated hip where sometimes follows a necrosis of the head of the femur. These changes do not closely assimilate Perthes disease.

Second, we must consider some congenital abnormalities of the hip. It is easy to visualize a deformed acetabulum which is too shallow or too wide, into which the head of the femur improperly fits and a resulting deformity occurs and then with this flattening of the head we get certain nutritional disturbances which result in necrosis.

Third, many writers have laid particular stress upon infections. They believe that it is essentially a disintegrating process which is due to some low grade infection. It has been confirmed by two or three surgeons who have opened the hip joint, but most workers along this line believe that these findings were erroneous and that the cultures of staphylococcus found were due to contamination. I personally do not believe the infection has any part to play in the etiology, except as a possible secondary invader. I am glad to say I have never opened one of these hips either as a diagnostic or curative procedure.

Fourth. Glands of internal secretion. This theory has been mentioned but has not been strongly advocated, not because it was illogical, but because so little research has been carried out. In my opinion we can look forward to great accomplishments in the etiology in this field of work. To some extent we have found out the effect of the thyroid and pituitary on bony growth and development and very recently we have learned the effects of the parathyroid gland.

In support of this theory we have studied a great many consecutive cases of osteo chondritis deformans juvenalis which were typical of disorders of the glands of

internal secretion. These cases were hypothyroid, hypopituitary or hypogonad, or a combination of one or two types. We have now under observation six cases of this type. All of these children are in good general health, but range from forty to sixty pounds overweight, and present rather typical hip changes.

*Symptoms:* The onset of this disease is usually insidious. The most frequent symptom noted is a limp, the foot on the affected side is dragged and is usually held in an everted position. There may or may not be pain, but there is usually some discomfort especially after they have been on their feet for a period of time. There is always some muscle spasm about the hip. There is a certain amount of limitation of motion of the hip, especially in abduction and internal rotation. These symptoms last for a variable length of time, and may be intermittent. The symptoms vary according to the amount of primary necrosis and the character of the regenerative process.

X-ray findings may be divided into four definite stages:

1. Stage of flattening. Increased in the density and a diminution in the size of the bony nucleus, making the head of the bone appear flattened.
2. Stage of fragmentation. The bony nucleus begins to show irregular calcification, the bony nucleus appears to be broken up, then the cartilage surrounding the bony nucleus gives way and spreads laterally.
3. Stage of repair. The fragments coalesce and become uniform and increase in size.
4. Stage of moulding. Moulding of the reformed femoral head continues until adult life, either a cap or a mushroom deformity persists. The neck of the femur becomes broader and later a shortening of the neck occurs.

The differential diagnosis should be made without great difficulty. There are two conditions which must be eliminated; namely, tuberculosis of the hip and coxa-vara.

We consider first tuberculosis of the hip. In Perthes disease there is almost free flexion of the leg which is in contra dis-

tinction to tuberculosis. In Perthes, in the act of walking the patient puts down his entire sole of his foot, while in tuberculosis they often walk on the toes to spare the leg. Of course, in tuberculosis we find it occurring in undernourished children. The symptoms are characterized by pain, night cries, sepsis, abscess formations, etc. The X-ray findings in Perthes disease are distinctive. In tuberculosis the characteristic signs of the X-ray are (1) lack of calcium, (2) indistinct outline of the joints, (3) changes of the acetabulum. The X-ray findings are diagnostic and will make the differential diagnosis without further aid.

Coxavara is a depression of the neck of the femur, as a result of this depression the trochanters are high and the child walks with a hollow back and a waddling gait. These signs are distinctive.

The prognosis in Perthes disease is fairly good. It depends naturally upon the amount of bony destruction and whether or not there is a secondary arthritis.

*Treatment:* There is a tendency toward spontaneous recovery in this condition. In our opinion if treatment is begun before the cartilaginous envelope of the epiphysis has been deformed, the subsequent malformation will be much less marked.

The treatment should consist of fixation in an abducted position and such other measures as to prevent the weight of the body being borne by the diseased limb. Usually we place the patient in bed with his leg in extension and abduction. After the muscle spasm has been relieved, we place the extremity in a hip spica-Whitman position—and keep the leg fixed until the X-ray shows a definite improvement. This will vary from four to fourteen months, or even longer. Definite improvement will always prevail and I think always leaves some defect of varying degree, but not necessarily any crippling or disabling symptoms.

Let me also add as a suggestion in the treatment that the definite glandular types of obesity be closely observed and should any symptoms referable to hip disease be manifest, let him be X-rayed and I think that some of the cases will be diagnosed early enough to prevent deformity.

These fat children should be reduced by proper treatment as prophylactic and curative management.

## FRACTURE OF THE NECK OF THE FEMUR IN THE AGED

EARL D. McBRIDE, M.D., F.A.C.S.  
OKLAHOMA CITY

Old age is a period of life which should bring happiness and enjoyment of previous labors. The individual who comes to old age and is so unfortunate as to have a hip fractured, faces a reverse of circumstances which brings his gray hairs with pain and suffering to the grave.

### RESPECT FOR AGE

Because they are old, their case is often unpromising and their treatment inefficient. In some instances, however, age is not given due consideration and the patient subjected to anesthetics, vigorous manipulations and immobilization in a position of great strain, all of which would tax the constitution of a much younger individual to survive.

Even though the patient may live through the torture of treatment, non-union frequently occurs, and continuous pain and disability is the result. Union with shortening is severely disabling. Union at the expense of a stiffened and painful knee or spine is also not to be desired. Union with no shortening, but inability to walk because of senile mental changes, or loss of balance in locomotion, also is not to be considered a good result.

### RESULT WITH PLASTER METHOD

In reviewing final results in cases past seventy where they were treated by plaster spica method, I was greatly disappointed at the small percentage of satisfactory results, although the morality rate was not high and union was obtained in nearly all cases. I found that a stiff knee was very troublesome in all cases; painful backs due to osteoarthritis of the spine was frequent; insanity developed in several; and a number never walked afterward because of loss of balancing ability.

After considering the severity of the cast method and surprisingly disappointing results in those over seventy years old, I began to search for a more satisfactory method. It is not the immediate effect of the fracture that kills, or sets up complications in these old people, it is the lack of surgical respect for senility.

### OVERSLUNG AND TRACTION FRAME

The overslung traction saddle frame is the result of developing the Bradford

frame and overhead bed frame into a more practical and effective apparatus for this particular type of case. After numerous changes from practical experience, the frame finally evolved into an apparatus such as I shall show you here today. With it we may secure the classical position of immobilization in abduction, internal rotation and extension. The patient is comfortable and the nursing problem facilitated. Other advantages of this frame are as follows:

1. Does not require anaesthetic.
2. Patient nor his position are disturbed when changing linen or mattress.
3. Patient lies on bed mattress rendering comfort.
4. Sitting position possible.
5. Knee and back unaffected.

### REDUCTION WITHOUT ANAESTHETIC

Reduction of the fracture is accomplished by position and traction. After assembling the frame over the patient, who lies undisturbed in bed, moleskin adhesive strips are applied to both legs as for Buck's extension and traction applied. To the uninjured leg, a longitudinal pull only is used, while for the injured leg, traction is applied in the form advised by Dr. Russell of Australia for treatment of fracture of the shaft of the femur. This method places a lifting as well as a longitudinal pull on the leg, just as one would do were he to take the knee in one hand and lift slightly while pulling on the leg with the other hand. An adhesive strip is bound to the knee, so that it will pull upward on the outer side of the knee, and to this the traction rope is attached. The pull on the outer side of the knee accomplishes internal rotation. The rope passes through four pulleys. One directly over the knee, another at the upper end of the foot bar, another on the spreader board and then through one lower down on the foot bar, to the weight below.

### MECHANICS OF REDUCTION

Position of the leg at first is 10 degrees abduction with thigh flexion of 35 degrees and about ten pounds weight. The weight is gradually increased to tolerance of patient, so that by the fourth or fifth day the fragments should be well approximated. The vertical pull is then released from the knee and applied longitudinally only. The extended knee is fixed in suspension by a

strip of muslin pinned to the bandage on the outer side of the knee to maintain internal rotation. Abduction and extension of both thighs are gradually increased to the fullest extent.

Reduction by this gradual method is accomplished first by pulling upon the thigh in a position which leaves the abductors and extensors relaxed so that the trochanter and remaining neck can pass downward. This could not be accomplished by immediately placing the leg in abduction and extension as is frequently done. After approximation is satisfactory as proven by the X-ray, abduction, internal rotation and extension lock the fragments in position until union takes place. Usually, the frame can be removed at the end of nine weeks. A walking caliper splint may be used in addition to crutches and weight bearing allowed at the end of fifteen weeks. If the walking caliper is not used, weight bearing should be cautiously applied until about the fifth or sixth month after injury.

### LOW BACK PAIN\*

ELIAS MARGO, M.D.  
OKLAHOMA CITY

No one reaches adult life without experiencing three ailments, i.e., headache, bellyache and backache. This only shows how common they are and no condition in orthopedic surgery is more frequently encountered than backache. Low back pain will be discussed designating particularly the lumbar and sacral regions. Although physicians have always known and treated such an ailment, it has been only by recent writers that the subject has been thoroughly investigated. This condition being so common it is well to consider those cases where it plays a small role and is only a small part of the complex: the symptomatic type, and in cases in which it is an essential symptom, affecting a particular area or region: the idiopathic type.

Symptomatic low back pain is very frequently in gastro-intestinal disturbances. Of these might be mentioned appendicitis, diseases of the lower bowel and peritonitis. The genito-urinary system offers another common source of backache, of these might be mentioned: renal disease, tumors,

adhesions and conditions affecting the bladder and prostate gland.

Probably the most important cases of symptomatic low back pain are those found in gynecological and obstetrical conditions. Here, we particularly think of those pathological conditions such as uterine displacements, tumors and pelvic inflammatory diseases. Also the common backache observed in the physiological pregnant uterus from pressure on the lower part of the spine. This kind of low back pain could perhaps be called physiological.

In diseases of the nervous system, pain in the back is frequently found. To this group belongs tabes, tumors of the cord, meningitis, neuritis and peripheral nerve disturbances—the most common of the last mentioned being, sciatica. This may also be secondary to the essential type of low back pain.

Affections of the spinal column practically always have back pain. This is especially true in tumors of the spine, chronic osteomyelitis, Pott's spine, typhoid spine and different kinds of arthritis, either acute or chronic. Finally, in general infectious diseases such as typhoid, influenza La Grippe, septicemia and acute articular rheumatism symptomatic low back pain plays an important part.

In considering the idiopathic or essential low back pain, a differentiation should be made between those cases resulting from a fracture of a bone, dislocation or displacement of joints and injuries to adjoining structures, and that large group of cases of injuries to the soft structures in the regions of the lumbosacral joint and sacro-iliac synchondroses—this includes most of the low back pain cases of mechanical origin.

It is estimated by several authors such as Herndon and Key, that about two-thirds of the injuries to the spine occur in these regions. Of these cases, approximately 20 percent affect the muscles of the back and 60 percent result in sprains or injuries to the ligaments. When changes occur in the ligamentous structures, due to physical external forces of enough strength to overcome their resistance, a sprain results. The chief function of the ligaments is prevention of motion of the part or joint between their attachments. The normal range of motion in the articulation determines the point at which a sprain begins. This point is the dividing line between physiologic range of motion and pathologic, or sprain.

\*Read before the Section on General Surgery, Gynecology, Obstetrics and Urology, Annual Meeting Oklahoma State Medical Association, Shawnee, May 28, 1930.

This excess motion, results in stretching of the ligament. Due to the restricted range of motion in the sacro-iliac joint, movements of the trunk and limbs cannot be satisfactorily taken care of and a sprain results. In other words, excess motion in adjoining parts to ligaments, results in a sprain.

Pathologically, a sprain causes stretching and tearing of ligaments, a space occurs, blood fills in the defect, granulations follow and finally scar tissue is formed. This results in loss of elasticity, hardness and ultimately, abnormal relaxation.

In sprains causing low back pain, anatomically, we should consider. First, the sacrolumbar joint between the fifth lumbar vertebrae and sacrum with the adjacent areas of the osilei; second, the sacro-iliac regions with its three distinct ligaments; and third, a combination of sacrolumbar and sacro-iliac sprain.

In the lumbosacral joint, besides the two bony structures which form the articulation, the ligaments are: (1) the strong anterior ligament along the anterior surface; (2) the smaller and weaker articular ligaments; (3) ligaments between the 4th and 5th lumbar transverse processes to the osilei; (4) the ilio-lumbar ligament; (5) and interspinous ligament.

In the sacro-iliac region, the anatomical structures are: (1) kidney-shaped articulation; (2) the anterior and posterior ligaments; (3) sacrospinous ligament and (4) sacrotuberous ligament.

From the above mention of anatomical parts of these regions, it is expected that forces antero-posteriorly are best able to derange the lumbosacral joint. Falls on the buttocks and violent hyperextension as well as lateral and rotatory forces may affect either or both regions.

The sacro-iliac joint is not stable. Goldthwaite and Osgood have demonstrated its motion in the cadaver. Physiologically, it is relaxed in pregnancy and during menstruation. A degree of relaxation occurs in sleep and in recumbency when maintained for some time. This explains the frequent backache which develops following such state of prolonged recumbency. The same applies after operation where complete relaxation of the sacro-iliac joints results from the anesthetic. For the same reason as explained by Goldthwaite "night-pain" in the back is relieved by stretching, thus the lumbar spine is drawn forward.

There are many anatomic predisposing causes in the lower spine which render it susceptible to sprain. Variations and defects frequently occur, weakening the site where present. Among these are spina bifida, sacralization, long transverse processes of the 5th lumbar vertebrae, irregular articulations, hollow back and static factors.

Pathologically, several conditions are also predisposing to back sprain, some of these are: inflammatory arthritis of these joints and osteoarthritis.

How different types of motion play their roles in causing low back pain, has been considered. Now it is well to analyze the various kinds of forces and other things which actually may be considered as the true etiological factors. Primarily, when due to trauma, it is well to have demonstrated how the accident occurred, the kind of force, its direction and tendency and a study of how it probably affected the back. A rotary motion of the body downward, may be produced by throwing a stone or swinging a club. The force may be transmitted upward as in running, jumping or sliding into a base. Again the force may be carried both from above and below the lower part of the spine. This frequently is the result in car accidents.

Very common types of injury which particularly affect the lumbosacral junction are the following: falling from some distance; heavy fall of objects on the shoulders; high diving; slipping on the ice and a sudden jerk while riding a horse. Again external forces are not the only features to be considered. The attitude and posture when the accident occurs are important. As an illustration, a stout person with pendulous abdomen—the weight of which causes a lumbar lordosis with a resultant relaxation and weakness of the pelvic joints, this type of individual frequently has low back sprain.

*Symptoms*—the onset is either sudden as in acute trauma or insidious as in occupational sprain. In sprains of this region, there are four cardinal points: (1) a definite point of tenderness; (2) further strain or stress aggravates the pain; (3) the reverse causes relief; (4) rest causes relaxation and comfort.

1. On pressure, the point of tenderness is lessened when the sprain becomes chronic.
2. With motion to accentuate the

pain in acute cases, the opposite may result in chronic stages when secondary complications may result.

3. In faulty methods for immobilization, no pain relief occurs. The method may not be complete or not properly applied.
4. In studying these cases, the ligaments should not be considered alone. The muscles and nervous complexes which frequently are present, should be closely scrutinized.

*Local Pressure.* In sacro-iliac sprain, the pain is found medial to the posterior inferior spine of the ilium. In the sacrolumbar region, if the tenderness is in the midline, it denotes the interspinous ligament; if more laterally, it means the ilio-lumbar ligament. When the sacrotuberous and sacro-spinous ligaments are affected, tenderness is present from the sides of the sacrum to the spine or the tuberosity of the ischium. Radiating pain is frequently present with either condition. This results from the proximity of the scarolumbar plexus and the sympathetic nerve plexus. Especially is this true in sacro-iliac conditions.

There are three kinds of radiating pains and these may occur either singly or more than one. First: (and the least common) is the gluteal nerve radiation. This is found across the upper part of the buttocks.

Second is the lumbar radiation which appears along the front and sides of the thighs as well as on the inner side of the leg.

Third, (and most common) is the sciatic radiation which follows the course of the sciatic nerve on the back of the thigh and anterolateral surface of the leg and foot.

*Posture.* On examination, the patient assumes the position of relief. In sacrolumbar sprain, this is in hyperextension and is due to the rigid lumbo-sacral muscles. In bilateral sacro-iliac sprain, the position is of flexion of the spine which results from the tense iliopsoas muscles. In unilateral sacro-iliac sprain, there is partial forward bending of the spine with the thigh slightly flexed in the affected side.

*Mobility.* This is examined by three methods, i.e., standing, sitting and lying-down positions.

*Standing:* In lumbosacral sprain, for-

ward flexion is done with the back rigid, the movement being carried on mostly by the hips, while in the sacro-iliacs, it is done with less effort. Hyperextension in lumbosacral sprain is not painful, while in sacro-iliac sprain, it is very limited and painful. Rotation is not affected in sacrolumbar sprain, while on the other hand, it is in the sacro-iliac affection.

*Sitting:* Flexion in the sacrolumbar type is very limited while in sacro-iliacs it is not. Hyperextension is limited in the lumbosacral sprain and still more so in the sacro-iliacs. Rotation causes no trouble in the lumbosacral sprain, while in sacro-iliac sprain it does, as the hips are fixed and therefore is more limited than on the standing position.

*Lying Down:* Flexion—in lumbosacral sprain, the lordosis remains constant while in the sacro-iliac, it disappears. Extension, lateral and rotary movements do not differ from those in the sitting position.

*Passive Motion:* In the examination for this, many special signs are used—these only will be mentioned: Forceable compression of the iliac crests; Lauguere's sign; Straight leg-raising sign; Goldthwaite's and Gaenslen's sign. One sign we employ in our institution is a simple method of specially detecting a sacro-iliac sprain which is carried out by the patient himself and therefore makes it more practical. It consists as follows: The patient, while standing, is told to lift one foot by grabbing the foot with opposite hand. In doing so, the thigh is flexed, abducted and externally rotated, placing stress and tension in the sacro-iliac joint of the side on which the foot is being lifted. At the same time, the other sacro-iliac joint being fixed by the weight of the body on that leg.

In the differential diagnosis, five things are especially of importance. These are: fractures, chronic arthritis, neurosis, exaggeration and malingering, and organic diseases of the spine such as tuberculosis and malignancy. A complete history, thorough examination and good X-rays should eliminate them.

*Treatment:* This may be classified as either conservative or operative. The conservative again may be divided into recumbent and ambulatory.

The recumbent treatment is indicated in acute painful cases with or without radiating pains. The patient is placed in a bed with a non-sagging mattress and the

lower limbs flexed. These are gradually extended as the muscles become relaxed. In sacro-lumbar sprain, a support should be placed under the lumbar spine. Traction may then be applied in certain cases until relief of muscle spasm results.

*Ambulatory Treatment.* This may follow recumbent treatment, or else is carried out in moderate acute cases; also in chronic cases without deformity. Several methods may be employed.

*Strapping.* This is applied either with adhesive or moleskin plaster for immediate relief. The method of application varies with the type of sprain. In sacro-iliac sprain, the support should be applied across and around the iliac crests so that complete fixation is obtained. In the lumbosacral sprain, the strapping should be crisscrossed from the shoulder on one side across the back and to the side of the thigh on the other side. The strapping should be applied in the position of relief.

*Belts.* For sacro-iliac sprain, this is applied low and should be of a supporting nature so that the iliac crests are firmly supported or girdled. In the lumbosacral involvements, the belt should reach higher. Belts may be used in subacute or mildly acute cases.

*Braces.* When the support or appliance is needed for a long period of time in chronic cases, a brace may be required. In these cases the type and kind will depend not only on the condition present but also on the choice of the surgeon and taste of the individual.

*Casts.* A plaster-of-paris jacket is frequently used in acute cases after the period of recumbency. It is essential in those cases where immobilization must be complete of the whole spine and pelvis. The cast must be well fitting and strong.

*Manipulation* is indicated and chronic cases with adhesions or in those unusual ones where a sacro-iliac subluxation occurs. Again it is indicated in some persistent sacro-iliac cases with complicating sciatica where nerve stretching under anesthesia is necessary.

*Physical Therapy.* Most cases of back sprain become dissatisfied because the average physician will only treat them by strapping. With physical therapeutic agents, you not only do something for the individual but when carried out properly it is our best method of relief. When prescribed, it must be carried out by a well

trained technician. The usual method is heat, either infra-red or diathermy. Usually the latter is most effective, and is then followed by massage. The massage should be of a scientific nature and not a rub-down. This should be given for at least 10 minutes following the application of heat. Medical gymnastics may also be indicated in subacute and chronic cases. With well supervised physical measures, the period of disability in low back pain is greatly decreased as well as the degree of discomfort.

*Operative Treatment.* In chronic cases, where all known measures have failed, open surgery may be of necessity, employed. In cases of impingement of the fifth lumbar transverse processes upon the osilei, surgical removal may be indicated. The same applies in painful backs due to sacralization.

Again fusion operations of the sacro-lumbar and sacro-iliac articulations for mobility with pain in chronic relaxed ligamentous structures, gives promise of permanent relief.

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#### CASE REPORT—AGRANULOCYTIC ANEMIA WITH RECOVERY\*

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D. O. SMITH, M.D.  
TULSA

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Our program committee chose this case, I presume, because recoveries from this malady are rare. Those associated with sepsis have a mortality of about 93 per cent. The cases occurring during antiluetic treatment have a mortality rate of about 45 per cent.

Late in the last century men had noted blood counts very low in granular or "poly" cells. Aleukemic leukemia, aplastic anemia, infectious mononucleosis, and various poisons were given as diagnosis.

Schultz in 1922 described a group of cases with severe gangrenous stomatitis and unusual blood pictures occurring in women with negative past histories.

To this condition he gave the name agranulocytic angina.

As more cases were studied it was found that necrosis which followed the blood changes may be encountered in various organs. The disease more often occurs without previous history but may follow or be

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\*Read before Staff Meeting St. John's Hospital, Tulsa, Oklahoma, November 18, 1930.

associated with other illness. Men are affected although less frequently than women. The age range is large.

The characteristic blood picture is a marked reduction or absence of granular cells, a low total leukocyte count, a relative but not an absolute increase in the lymphocytes, an actual increase in the reticulo-endothelial cells, and little or no change in either the platelets, red cells, or hemoglobin unless there is oozing of blood or hemorrhages. The coagulation time is usually unchanged even in the bleeding cases.

The onset in septic cases is marked by high fever, 100 to 105 degrees. Nearly all have sore throats and, in decreasing percentages, malaise, exhaustion occurring early, dysphagia, chills, headaches, myalgia, herpes, and bleeding. You will recall one case of bleeding in this hospital. Jaundice develops in about 60 per cent of the cases, commonly coming on after the onset or late in the disease.

With few exceptions, we can say that the course is short, the decline is rapid, and death the outcome.

The toxin or toxins seem to attack the hemopoietic system after the cells are differentiated and the greatest destruction is in the granular cell group. These latter cells may disappear entirely from the circulating blood before death. Microscopic study of the bone marrow shows it to be poor in cell structure with a predominance of lymphocytic and endothelial cells. You will recall the pathological reports on two autopsies done in this hospital last year.

The regions affected show very little cell reaction with an absence of polynuclear cells. The various organs, as spleen, liver, lymph-nodes, show a hyperplasia of endothelial cells. These cells show a phagocytosis of cell debris as if attempting to take over the work of leukocytes. Contrasted with the picture of leukemia, there is no increase in lymphocytes and there is no lymphocytic infiltration of the organs. There is, however, infiltration of the organs with endothelial cells. Leukemia is not characterized by an endothelial cell proliferation.

Some of you will recall that in 1927 I reported a fatal case in this hospital. The patient was a man past 60. The polynuclear cells disappeared completely from the blood stream. At that time the literature was very meager. Since then, exhaustive

articles have appeared. Now, a bibliography would fill pages. Since my first recognized case, I have seen several in company with other physicians.

The case presented to-night is that of a woman, graduate nurse, single, 39 years of age, well developed and nourished. She was seen at the office, August the 18th. The complaint was uterine bleeding. Until two years ago the periods had been regular. This was followed by prolonged irregular periods. Last winter a curettage was done in a neighboring city. She did not menstruate in February or March of this year. She flowed all of April and at short intervals since that time.

The salient points in the past history are: an appendectomy with some minor pelvic work twelve years ago, a cholecystectomy four years ago. She denies the occurrence of sore throat. The mother and both grandmothers passed the menopause at the age of 45, 32, and 35 respectively. Hemorrhage was troublesome at the time of the former operation and she fears surgical work. At the time of the first visit, the uterus was found to be slightly enlarged and apparently of the fibrous type.

August the 26th she was given 800 milligram hours of screened radium intrauterine. Until recently there has been no bleeding when a small amount was noticed, this latter apparently being menstruation.

The evening of August 31st she was seen at her home. She had a very sore throat, the mucous membrane was red, granular, and somewhat edematous. The tonsils, especially the right, were swollen and red and a thin membrane was found on the right side. The temperature was 102½. Speech was muffled; swallowing was very difficult. Smears and cultures were negative for diphtheria. A short chain streptococcus was found to predominate. She appeared toxic. Headaches, muscle pains, and angina were marked.

Rest in bed, frequent hot saline gargles, and antipyretics were instituted. A blood count the following morning showed a leukocyte count of 5,200 with 41 per cent polymorphonuclears. Dr. Davis examined the throat. She entered the hospital September 2nd. At this time the right tonsil was greatly swollen and two crypts were filled with a dark tough adherent membrane. There was an offensive odor. The left was less affected. One might consider this a good case for diphtheria antitoxin. The smears and cultures were similar to

those taken at the home except that spirilli were found.

She was given large frequent throat irrigations of hot saline. This was accomplished by gravity, and the solution was used unsparingly. Local applications of 2 per cent mercurochrome and 15 per cent neosilvol were used, I believe, from a sense of apparent therapy and probable respect for tradition. Care was taken not to use strong irritants, corrosives, or escharotic chemicals.

That night the left tonsil developed a necrotic membrane. Symptomatic treatment was followed. Fluids were forced and nourishment was insisted upon to prevent acidosis. The chloride content of the blood was noted. The patient was given a transfusion of 500 cc. of whole blood.

The following day the right tonsil began to clear up. Swelling reduced rapidly. In twelve hours the left began to clear. The blood picture improved. Copper and iron tonic and a nourishing diet were given. Improvement was rapid. The patient went home on the fifth day against advice.

This case never reached a complete agranulocytosis but the symptoms were so typical, the blood decline so rapid, that we felt that a diagnosis could be made.

The patient, who is now walking into the room, looks well. The picture is a contrast to the one many of you saw in the room down stairs a few weeks ago. She still has her tonsils. She says that the recent trouble was the first time she has had any trouble with the tonsils and that she is fearful of hemorrhage if a tonsillectomy is done. She has been told that cases are on record where apparent recoveries have been followed by recurrences. She knows the gravity of the disease.

I must express my appreciation of the prompt, efficient and enthusiastic work of the laboratory department in the numerous examinations that were made. Extensive blood studies were done including several blood chemistry estimates. Time will not permit discussion of all of the serological and cytological reports. The blood pictures are submitted in outline form.

#### BLOOD COUNTS

Date	Total Leukocytes	Total Red Cells	Hemoglobin	Basophiles	Eosinophiles	Myelocytes	Young Forms	Band Forms	Segmenters	Lymphocytes	Monocytes	Unidentified	Peroxidase	Non-Peroxidase	Cooke Index	Coagulation Time
9-2-30	8050	3180000	60	0	0	2	5	7	1	40	7	36	30	70	1.05	5+
9-3-30	7200	2170000	40	0	0	1	8	5	2	34	13	37	16	84	1.12	4+ 30++
9-4-30	5500	3060000	50	0	0	0	7	8	0	51	3	31	13	87	1.00	4+
9-5-30	5550	3610000	60	0	0	0	1	19	4	62	3	11	33	67	1.16	3+
9-6-30	9800	3760000	70	0	1	0	1	21	17	54	4	2			1.48	2+ 30++
9-7-30				0	0	0	0	28	26	29	17				1.96	

DISCUSSION: E. Rankin Denny, M. D., Tulsa.

Dr. Smith has emphasized an important point, that of removing an obvious source of infection: namely, the tonsils. This is important because of a probable recurrence of the agranulocytic factor. I should like to call attention to a case reported by Rutledge, Hansen-Pruss, and Thayer in the Johns Hopkins Hospital Bulletin. This case is unique in tomes of medicine in that it was one of cyclic recurring agranulocytic angina without anemia. This case has been under observation by various ob-

servers over a period of twenty years. It was seen first at the age of two and a half months by Leale of New York, at which time there was a condition of furunculosis, intermittent fever, and leukopenia with a marked reduction of the granulocytes. A few months later Dr. L. E. Holt saw the child and noted during another attack the swollen, red gums, fever, and jaundice. The case was labelled at this time Vincent's infection. At that time the attacks were occurring at about three weeks intervals.

In 1916 at the age of 8 he had three at-

tacks during the summer. When he was 11 years old he was observed at the Harriet Lane Home of the John Hopkins Hospital. During one of his attacks, Vincent's organisms were isolated and the typical blood picture was observed. In 1928 the authors observed him while he was suffering several attacks. The outstanding observation made at that time was the effect of the blood serum of the patient on leukocytes of the same blood grouping. It was observed that shortly before the onset of an attack, normal leukocytes when mixed with the patient's serum lost their motility and underwent lysis. Monocytes and lymphocytes were not affected. Observation regarding this characteristic on further cases would be desirable.

Recurring agranulocytosis has been reported but this is probably the first instance recorded where anemia has not been a part of the picture.

#### DISCUSSION: I. A. Nelson, M.D., Tulsa.

At the meeting of the American Society of Clinical Pathologists held in Detroit last June, blood dyscrasia with particular emphasis upon agranulocytosis was liberally discussed. I should like to repeat in substance the comments of Dr. R. M. Keilty made at that meeting. He has taken the attitude that every case of sore throat associated with leukopenia and anemia (instead of the usual leukocytosis) is a potential agranulocytosis. Without waiting for the full differential classification of the ultimate blood picture, he immediately begins continuous local mild treatment. He does not consider that one can foretell just what medicament will inhibit bacterial activity, and he consequently uses gentle swabbing at 15 minute intervals over a period of six hours with one drug and then for the next six hour period uses another. One case cited by him did not show any improvement until a mild boric acid solution was used more than 36 hours after beginning treatment.

Dr. Keilty's treatment may seem heroic. Dr. Smith's case most certainly was treated heroically. However, when compared with previous cases that we have observed and when the mortality rate is compared and when we see this patient as she is today, such treatment in further cases seems most essential.

#### PNEUMOCOCCIC EMPYEMA

Nine cases of pneumococcic empyema treated by intrapleural injections of ethylhydrocupreine hydrochloride are reported by Harry Lowenburg, Philadelphia (Journal A.M.A., July 13, 1929). All the patients received intrapleural injections of ethylhydrocupreine hydrochloride (optochin). In four of them rib resection and drainage were done after from four to six injections of ethylhydrocupreine hydrochloride. All recovered completely after operation. Five patients were not treated surgically but made complete nonoperative recoveries. The mortality in the nine cases was nil. In those patients who recovered without surgery there was a gradual subsidence of fever with improvement in the physical signs. Those cases which were diagnosed late, and in which fever was slight or entirely absent, did not show any increase in temperature. Before the physical signs improved it was noted that in the favorable cases the pleural exudate, which sometimes reaccumulated before final recovery, thus accounting for the persistence of the physical signs, underwent a retrogressive change; the pneumococci, too, became decidedly less and were less viable on culture, and in some cases did not grow at all on culture, although they were recoverable by direct smear.

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#### MASSIVE ATELECTASIS AND POSTOPERATIVE PNEUMONIA

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Routine hyperventilation during or at the close of operation has greatly diminished the incidence of massive atelectasis and probably also the other serious postoperative pulmonary complications in the series of cases studied by W. J. M. Scott, Rochester, N. Y. (Journal A.M.A., July 13, 1929), over a period of more than two years. Therapeutic hyperventilation early in the course of those cases in which massive atelectasis does develop produces immediate striking benefits, both clinical and roentgenologic, and when followed by postural treatment has cleared up the uncomplicated cases within a very short time. No patient in the series so treated have had any important symptoms of massive atelectasis for more than from twenty-four to forty-eight hours, whereas it was common before the institution of these measures for the serious symptoms to extend over a period of a week or more. On account of the difficulty in determining the exact limits of postoperative pneumonia, Scott does not have statistical evidence of its benefit either as a prophylaxis or a treatment for post operative pneumonia. However, it appears quite clear that such postoperative pulmonary complications without cardiac displacement are fundamentally similar in origin to those in the group which has been submitted to statistical study, and there is assurance that cases of postoperative pneumonia not falling in this group of massive atelectasis show at least symptomatic benefit from hyperventilation with carbon dioxide. Previous studies have shown that the incidence of postoperative pulmonary complications is much higher in two groups of operative cases: (1) those in which the operative incision is located in the upper part of the abdomen, and (2) those in which for any reason there is a diminished vital capacity. Consequently in these two groups of patients particularly it seems desirable to carry out prophylactic hyperventilation with carbon dioxide, the procedure to be repeated early if any symptoms suggesting the development of postoperative pulmonary complications arise.

# THE JOURNAL

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.  
DR. P. P. NESBITT.....Associate Editor  
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Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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### EDITORIAL

#### REASON IN PRACTICE

The physician should at all times attempt to have a logical course, based upon pure reasoning as a basis or incentive for his treatment and management of a case. Even though treatment is administered solely through the agent of the simplest placebo, sound reason should prompt it. Such treatment, if indicated is often as important, so far as the individual case is concerned, as is precise indicated surgery or exact specific medication.

Certainly there is no place, time, indication or excuse for guess work or careless

neglect in the handling of a case. It is far better for a physician, confronted with uncertainty as to which course he should pursue, to frankly admit the situation to himself, so advise his patient, and either call for consultation or dismiss the case to other hands.

The writer's attention is often called to criticism of the entire medical profession, over some reported act of an individual physician, which has either never occurred, has been grossly misinterpreted, or, if true was carried out without logic, and obviously prompted by mere guess work. In the course of the year it has been the writer's position to hear literally hundreds of statements as to the findings, opinion or course of treatment of cases. The stories heard are sometimes unbelievable and impossible of squaring with the facts in the case. As a rule, however, the patient has obviously misunderstood the statement made by the physician. Often the statements are deliberately misinterpreted to favor the patient's hopes and wishes; this is especially true in insurance and industrial cases, and in this connection the wide range of imagination of the neurotic patient must be borne in mind; it must be remembered that *any statement* to this type of case may have potential dangers, this too, regardless of painstaking explanation. In these cases it is probably best to say as little as possible, though they may be very favorably affected and benefitted by very positive statements or advice as to the course they should follow. On every occasion, however, the physician's course should stand four square with his best judgment and have behind it a clear rationale. We are seeing far too much delay in the handling of dangerous cases, which, too often can only be attributed to non-appreciation of the gravity. Despite the advance of modern medicine and surgery we still see too much prescribing of laxatives and cathartics in dangerous, acute, abdominal conditions, too little attention to the cause behind a rapid pulse, fatigue, loss of weight, too much "symptomatic" treatment of headaches, which may be based upon any one of a score of fixed disease entities and we still see "malaria" treated when it is some other disease.

The physician should follow, or attempt to follow a well ordered course in diagnosis and then the applicable course for control. The well balanced physician often finds himself justified in wholly disregarding laboratory findings, and treating the

case solely upon clinical findings; conversely, he is often warranted in following the leads given by his laboratory findings. But in all cases he should base his actions and prescriptions upon sound common sense and reason as may be applied to the problems at hand.

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### AVERTIN, NOT ACCEPTED BY THE COUNCIL

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The preliminary report of the Council on Pharmacy and Chemistry of the American Medical Association, (Journal of the A.M.A., November 8, 1930, page 1427) states that the Council recognizes the fact that Avertin presents certain desirable properties, but definite action concerning its recognition was postponed pending the result of investigations of certain of its side actions now being conducted. Apparently Avertin, very early in its history, achieved an undesirable reputation, for in April, 1927, at the German Surgical Congress at Berlin, thirteen deaths were reported and though Avertin was not blamed for all of the deaths, such severe criticism by numerous surgeons at the meeting was made that it was temporarily withdrawn by the manufacturers.

Inasmuch as a great deal has been written about the use of Avertin, we believe it well to set down the advantages and disadvantages of the drug as named by the Council: They are as follows:

"The advantages claimed for Avertin liquid include: 1. Absence of so-called psychic shock or mental distress (almost unanimous). 2. Absence of irritation of the respiratory tract with less postoperative bronchitis and pneumonia. 3. Absence of direct injurious action on the heart, kidneys and other organs, with the possible exception of the liver. 4. Convenience for operations about the face, especially when a cautery must be used. 5. Usefulness in long operations when deep anesthesia is not necessary. 6. Less frequent vomiting than after ether or chloroform. 7. Lasting sleep after operation, frequently making it unnecessary to use morphine for the relief of postoperative pain. 8. Amnesia. 9. Absence of injury after repeated administration (as in tetanus). 10. Rapid elimination (implying less toxic action). (It should be understood that publications concerning "Avertin" refer in part to Avertin alone, and in part to Avertin liquid containing amylene hydrate).

The disadvantages include: 1. Higher death rate than after ether. 2. Depression of respiratory center. 3. Depression of circulation. 4. Acidosis as actively as after chloroform. 5. Insufficient muscular relaxation in laparotomy (?). 6. Falling back of tongue, making constant observation necessary until the patient is fully conscious. 7. Lack of control from moment to moment (almost unanimous). 8. Want of exact dosage. 9. Narrow zone between anesthetic and fatal dose. 10. Disadvantages inherent in mixed narcosis. 11. Lack of adequate pharmacologic study of Avertin and its synergistic action with morphine, ether and other substances. 12. A lack of agreement concerning the indications and contraindications."

The Council believes, that the present evidence indicates that Avertin may prove of value as a means of initiating narcosis, that is, (so-called basis narcosis) but not for complete narcosis. Therefore admission is withheld until certain satisfactory studies of its properties have been made; until the contraindications have been satisfactorily established; until a generally accepted technic has been established; and until the advertising has been revised to omit misleading statements in connection with its use.

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### THE DIAGNOSTIC LABORATORY

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Sometime ago the Journal received a circular advertising the Diagnostic Laboratory, P. O. Box 1828, Tulsa, this from one of our members. Later an inquiry came from Texas as to the reliability of the laboratory. This laboratory proposes that you select the most stubborn case. "From this case take a blood smear about the size of a half-dollar on a piece of Hæmoglobin paper and let it be untouched by any hands. Protect it with a bit of cotton and mail to us. Indicate whether taken from male or female, age, chronic or acute case, together with your case number for future identification. We will send you a complete diagnosis of the case from which the blood is taken. This may seem impossible, impractical, unreasonable, et cetera, but remember you are to be the sole judge as to its accuracy."

We think this is enough to say about this Laboratory. The writer has undertaken to ascertain whether any physician has any connection with it, but the sponsors for this wonderful diagnostic aid do not

wish to disclose their connection, if any; they stated that they wished the proposition to stand solely on its *merits*.

We hardly believe any physician will be gullible enough to find himself allied with such matter.

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### **Editorial Notes--Personal and General**

DR. E. S. FERGUSON, Oklahoma City, our President, spent the holidays in Cuba.

DR. J. C. BUSHYHEAD, Claremore, who was injured some two weeks ago is reported improving.

DR. HENRY H. TURNER, Oklahoma City, is at home after three months post-graduate work in Neurology, in Vienna and London.

DR. J. N. CROSS, Cheyenne, will leave the first of the year for Tulane University, New Orleans, where he will take post-graduate work for three months.

LATIMER COUNTY MEDICAL SOCIETY elected the following officers for 1931: Dr. T. L. Henry, president; Dr. E. B. Hamilton, secretary, both of Wilburton.

ATOKA COUNTY MEDICAL SOCIETY elected the following officers at their regular meeting held December 29th: Dr. J. S. Fulton, president; Dr. C. C. Gardner, secretary, both of Atoka.

GREER COUNTY MEDICAL SOCIETY met December 12th and elected Dr. J. T. Lowe, Mangum, president; Dr. G. W. Austin, Mangum, vice-president; Dr. J. B. Hollis, Mangum, re-elected secretary.

DR. AND MRS. H. W. FORD, Tulsa, received injuries, more or less painful, in an automobile accident west of Muskogee in December. Dr. Ford, it is said, received very painful injuries which will prolong his convalescence.

GARFIELD MEDICAL SOCIETY held their annual meeting December 18th, and elected the following officers: Drs. S. H. McEvoy, president; C. W. Tedrowe, vice-president; John R. Walker, re-elected secretary-treasurer, all of Enid.

MARSHALL COUNTY MEDICAL SOCIETY met December 9th for their regular meeting. The following officers were elected: President, Dr. P. F. Robinson, Madill; Vice-President, Dr. W. D. Haynie, Kingston; Secretary, Dr. J. H. Veazy, Madill.

JACKSON COUNTY MEDICAL SOCIETY met December 19th in the office of Dr. E. A. Abernathy, for election of officers of 1931: Dr. E. S. Crow, Olustee, re-elected president; Dr. J. B. Hix, Altus, vice-president; Dr. E. W. Mabry, Altus, re-elected secretary and treasurer.

PUSHMATAHA COUNTY MEDICAL SOCIETY elected the following officers at their meeting held in December: Dr. D. W. Connally, Clayton, re-elected president; Dr. John S. Lawson, Clayton, re-elected secretary. Drs. G. E. Colby, Darwin; E. S. Patterson, Antlers; and B. M. Huckabee, Antlers, were named censors.

OTTAWA COUNTY MEDICAL SOCIETY elected the following officers at their meeting, December 19th: President, Dr. F. V. Meriwether, Miami; 1st vice-president, Dr. Geneal Pinnell, Miami; 2nd vice-president, Dr. B. F. Ralston, Commerce; 3rd vice-president, Dr. R. H. Harper, Afton; Secretary-Treasurer, Dr. W. G. Chesnut, Miami.

PITTSBURG MEDICAL SOCIETY held its annual meeting December 5, 1930. The following officers were elected: President, Dr. W. W. Sames, Hartshorne; Vice-president, Dr. W. C. Wait, McAlester; secretary-treasurer, Dr. F. L. Watson, McAlester. Censors, Drs. F. J. Baum, T. H. McCarley and J. C. Johnston, all of McAlester.

TULSA COUNTY MEDICAL SOCIETY elected the following officers at their annual meeting, in December: Dr. Henry Browne, president; Dr. Fred Bolton, vice-president; Dr. Carl F. Simpson, re-elected secretary-treasurer; Dr. C. J. Woods, dermatologist, was elected president for 1932, it being the policy to elect the president a year in advance.

GARVIN COUNTY MEDICAL SOCIETY met December 17th in the office of Dr. W. P. Greening for the purpose of electing officers for the ensuing year. They were as follows: Dr. L. P. Smith, Elmore City, president; Dr. Ray Lindsey, Pauls Valley, vice-president; Dr. J. R. Callaway, re-elected secretary. Dr. Hugh Monroe, Pauls Valley, delegate.

CREEK COUNTY MEDICAL SOCIETY met December 4th and elected Drs. C. L. McCallum, Sapulpa, president; John Wells, Bristow, vice-president; G. C. Croston, Sapulpa, secretary-treasurer. Dr. W. A. Howard, Chelsea, councilor of district number six, was present and gave a very interesting and instructive talk on "Organized and Progressive Medicine."

McCURTAIN COUNTY MEDICAL SOCIETY met December 23rd. Dr. A. W. Clarkson, Valliant, read a paper on "The Treatment of Pneumonia," and Dr. N. L. Barker, Broken Bow, read a paper on "Scarlet Fever." The following officers were elected: Dr. R. D. Williams, president, Idabel; Dr. J. T. Moreland, vice-president, Idabel; Dr. R. T. Sherrill, secretary, Broken Bow.

BRYAN COUNTY MEDICAL SOCIETY met December 10th, electing Dr. John T. Wharton, Durant, president; B. B. Coker, Durant, vice-president; Dr. Jas. L. Shuler, Durant, secretary. Censors: Drs. H. B. Fuston, Bokchito; W. A. Houser, and John A. Haynie, Durant. Drs. Wharton and Haynie, both of Durant, and A. J. Wells, Calera, were named delegates to the State Medical Association meeting.

MUSKOGEE COUNTY MEDICAL SOCIETY met December 8th for their annual election of officers for 1931. The following were named: Dr. Wm. Pat Fite, Muskogee, president; Dr. A. L. Stocks, retiring president, was named president emeritus. Dr. L. C. McAllister, vice-president; Dr. E. H. Coachman, secretary; Drs. J. G. Rafter, H. T. Ballantine, and J. S. Fryer, will serve on the board of censors, all of Muskogee.

WOODS COUNTY MEDICAL SOCIETY met in Cherokee, November 25th, in connection with Alfalfa County Medical Society. Dr. C. E. Ross, Wichita, gave a paper on "Poliomyelitis." A banquet was served after the business session. The following officers were elected: President, Dr. John E. Hammer, Kiowa, Kansas; Dr. L. O. Rogers, Alva, vice-president; Secretary-Treasurer, Dr. O. E. Templin, Alva, Oklahoma.

PAYNE COUNTY MEDICAL SOCIETY met in December and elected the following officers for 1931: Dr. C. E. Sexton, Cushing, president; Dr. T. A. Love, Cushing, vice-president; Dr. R. E. Roberts, Stillwater, secretary; Dr. W. N. Davidson, Cushing, delegate; Dr. H. C. Manning, Cushing, alternate. Censors: Drs. L. R. Wilhite, Perkins; D. L. Perry, Cushing; W. B. Hudson, Yale. Committee on Public Policy, Dr. R. J. Shull, Stillwater.

PONTOTOC COUNTY MEDICAL SOCIETY met in Ada, December 3, 1930, for their regular monthly meeting. The following officers for 1931 were elected: Dr. E. A. Canada, president; Dr. O. H. Miller, vice-president; Dr. W. F. Dean, secretary-treasurer; censors, Drs. O. E. Weldon, M. C. McNew and Catherine Brydia. Interesting papers were read by Dr. O. H. Miller, entitled "Headaches Due to Conditions of the Eyes, Ears, Nose and Throat," and Dr. E. A. Canada, entitled "Eclampsia."

THE MARK FINSTON FUND. Mr. Mark Finston, Tulsa oil man, has established a fund for use in St. John's Hospital, Tulsa, for research work in hematology. This fund has been provided for studying blood changes in various diseases, working out specific problems in blood dyscrasias. The amount of the fund is not announced, but it is understood that additions to the sum will be made as conditions demand. So far as is known this is the first research fund established in the State of Oklahoma.

LINCOLN COUNTY MEDICAL SOCIETY met at Chandler December 3rd. Dr. C. B. Barker, Guthrie, lectured on "Suppuration of the Middle Ear." The lecture was illustrated with motion pictures and slides. After the lecture the following officers were installed for 1931; President, Dr. J. S. Rollins, Prague; vice-president, Dr. W. D. Baird, Stroud; Secretary-Treasurer, Dr. F. H. Norwood, Prague. Censors, Drs. U. E. Nickell, Davenport; A. M. Marshall, Chandler; H. B. Jenkins, Tryon. Delegate, Dr. A. M. Marshall and Alternate, Dr. J. W. Adams, Chandler.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION held their 9th quarterly session at the Chamber of Commerce Building, at Pauls Valley, Tuesday, December the 9th. The attendance was approximately 120. The following program was rendered: Address of Welcome, Hon. Mac Q. Wil-

liamson; Response, Dr. F. A. Harrison; Mild Hypothyroidism, Dr. A. B. Leeds, Discussion opened by Drs. B. H. Cooley, C. J. Fishman and O. W. Sprouse; Diarrhea of Children, Dr. R. M. Anderson. Discussion opened by Drs. R. H. Lindsay and F. A. Harrison; Otitic Abscess of the Brain, Dr. W. T. Salmon. Discussion opened by Drs. H. C. McNew, L. C. McHenry and A. L. Guthrie; Early Carcinoma of the Cervix, Dr. J. F. Kuhn. Discussion opened by Drs. H. P. Wilson, A. R. Sugg and H. M. McClure; Neuro-Syphilis, Dr. C. P. Bondurant. Discussion opened by Dr. D. W. Griffin; Fantasy, Day Dreams and Dreams, Dr. M. S. Gregory. Dr. J. I. Hollingsworth was elected President-Elect and Dr. J. W. Nieweg was re-elected secretary-treasurer.

#### DOCTOR JOSEPH A. PATTON

Dr. J. A. Patton was born March 10, 1868, in Oxford, Mississippi, and died at his home in Stilwell, December 5, 1930.

His preparatory education was at Presbyterian College, Clarksville, Tenn. Graduated in Louisville, Ky., Medical College, June 22, 1892. Began practice of Medicine at Evansville, Arkansas, 1892. He moved to Stilwell, April 16, 1896, served as County Superintendent of Health since statehood, member of State Medical Association and Secretary of Adair County Medical Society.

Dr. Patton is survived by his widow and five children.

Interment was made at New Hope cemetery, Stilwell, after Masonic services.

#### DOCTOR EVERETT G. NEWELL

We, the undersigned committee of the Payne County Medical Association, extend to you for ourselves and our associates our profound sympathy and condolences in this, the great crisis of your life in the loss of your husband.

We know how hard it is to gild a grief with words and how inadequate language is to express our feelings. We but do the best we can.

Dr. Newell was a man among men—a true and loyal physician, a comfort to the poor, and a help to many. While often-times he was more sick than those he comforted, yet he gave of himself freely. He fought a brave fight and kept the faith. He filled his niche, and in departing, has left to all who knew him a fragrant memory of a life well lived—a duty well and bravely done.

We are resolved that this letter shall be spread upon the minutes of our association in memory of him.

Respectfully,

J. T. GRAY,  
R. J. SHULL,  
D. J. HERRINGTON,  
Committee.

## DOCTOR E. E. POYNOR

Dr. E. E. Poynor, Stilwell, died November 11, in Louisville, Ky., where he was attending a medical meeting.

Dr. Poynor was born in Osage, Ark., in 1881. He graduated from the University of Arkansas Medical School in 1904. He came to Stilwell in 1927, where he was a resident until the time of his death.

He is survived by his wife and four children.

The body was shipped to Green Forest, Arkansas, where interment was made.

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## ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.  
717 North Robinson Street, Oklahoma City.

**Heliotherapy in Relation to the Treatment of Tuberculosis of the Spine in Children.** Ralph K. Ghormley, J. Am. Med. Assn., LXXXVIII, 289, January 29, 1927.

Paper based on sixty-three cases treated at the New England Peabody Home for Crippled Children, Newton Center, Mass.

Progress records:

1. Spine tracings made at six weeks' intervals.
2. Weight chart, record made monthly.
3. Anteroposterior and lateral X-rays at four months' intervals.

**Fixation:** By means of a split plaster jacket applied on a Goldthwaite frame. This permits removal for heliotherapy and supports when the child is permitted up for play.

Deformity is improved when possible and may be expected when the case is treated early and involves the lumbar and lower dorsal regions.

**Effect of Heliotherapy:** Combined with rest and good food results in increased resistance, gain in weight, and hastening of calcification in the diseased bone. Patients are notably better at the end of the summer period with sixty-three per cent of sunshine, than they are following the winter period, which at Boston has only forty-eight per cent of possible sunshine hours. Artificial quartz light therapy is substituted on cloudy days, but is of doubtful value.

The author stresses the importance of the weight chart, deformity tracings and roentgenograms.

**A Clinical and Statistical Study of Chronic Arthritis Based on Eleven Hundred Cases.** Ralph Pemberton and E. G. Pierce. Am. J. Med. Sc. CLXXIII 31, 1927.

Clinical observations on 700 cases in civil life are compared with similar observations on 400 cases among soldiers. In civil life the onset was gradual in more than half of the cases and the knee was the site of most frequent involvement in all groups of both sexes. Foci of infection were present in about seventy per cent of both groups but in 100 consecutive cases of disease at large admitted to the medical service of the Presbyter-

ian Hospital, Philadelphia, more than eighty-seven per cent had active foci of infection. Neoplasms, active tuberculosis, and diabetes were very rare in chronic arthritics. The blood pressure tended to be normal or low among arthritics and the disease was often associated with secondary anaemia.

Prognosis is good in all types of arthritis. Seventy-three per cent of the civilian cases were definitely improved and of these one-third recovered completely. Only nine per cent in the civilian group and four per cent in the army group were unimproved. The proliferative arthritis responded better to treatment than did the degenerative.

**Unusual Cases of Poliomyelo-Encephalitis.** W. A. F. Collis, Lancet I, 927, April 30, 1927.

**Case 1.** Boy, aged twenty-one months. Vomiting, convulsions, loss of sight for one week.

On examination: Total blindness; internal strabismus; constant, slow, upward and downward movement of eyeballs and eyelids. Rigidity of back and neck, reflexes normal, no paralysis. Temperature 104.6 degrees, C.S.F. pressure high, otherwise normal. Recovery associated with much irritability. Two months later reported change of temperature, now irritable.

**Case 2.** Girl, aged twenty months. Vomiting, stiffness of back and neck two days. Temperature 101.6 degrees. Knee jerk absent on left side, left leg weaker than right. C.S.F. under pressure, otherwise normal. Four weeks afterwards, child was able to sit up. Irritable during recovery.

**Case 3.** Boy, aged three and one-half years. Pains in back and limbs, inability to walk, irritability, five days. Temperature 99.6 degrees. Knee jerks absent, Kernig sign positive. C.S.F. under pressure contained 0.3 albumin. Four days later parens of left deltoid. In hospital six weeks. Steady improvement. Left with intention tremor resembling paralysis agitans, most marked in the hands. Very emotional.

**Case 4.** Girl, aged three and one-half years. Lethargy, marked stiffness of back and neck. Sudden onset three days previously. Temperature 101 degrees. Cried when touched. Kernig sign positive. Optic discs normal. Knee jerks present. Discharged as normal three weeks later,

In Case 1, most of the symptoms can be located in the mid-brain, e.g. the blindness and the eye movements. In Case 3, the subsequent tremor was the only symptom of mid-brain lesion. All the cases showed stiffness of the back and other meningeal symptoms. Treatment of these cases is largely symptomatic; lumbar puncture useful for relieving pain and stiffness of the back.

## ORTHOPAEDIC SURGERY

Edited by W. K. West, M.D.  
520 Osler Building, Oklahoma City.

**The Importance of Use of the X-ray in the Treatment of Joint Injuries.** Sir Robert Jones and Robert W. Lovett. Textbook on Orthopedic Surgery, Page 7.

The surgeon who undertakes the responsibility of treating a joint injury without examining a good X-ray assumes a very great risk and it is often a safeguard to have an X-ray of the joint of the other side for purposes of comparison. In so-called sprains which have persisted, one finds a

fair proportion of cases with fracture. In the hand, fractures of the phalanges and metacarpals are very common, and Colles' fracture and fractures of the carpal bones are constantly overlooked; in the shoulder one often finds an avulsion of the insertion of the supraspinatus. In the foot, fracture of the 5th metatarsal often escapes notice, as well as the tearing off of the tip of the inner malleolus; and fracture of the os calcis is not always recognized. At the knee, avulsion of the tibial insertion of the cruciate ligaments may be found. As for the hip, bending of the neck of the femur in children, especially, constantly escapes observation.

Patients are very intolerant of the omission of an X-ray under these conditions, however much they have objected to it at the time of injury, and the risk to the patient and to the surgeon's reputation from omitting X-rays in practically any case of joint injury is considerable.

**Acute Fractures of the Shaft of the Femur in Children.** H. Earle Conwell, M.D., F.A.C.S., Fairfield, Alabama. *Journal of Bone and Joint Surgery*, July 1929.

This article is quite extensive and covers "A Report of the Treatment and Results Attained in Eighty-Six Acute Fractures of the Shaft of the Femur in Children, With a Resume of Various Types of Treatment and Results Attained by Other Surgeons."

#### CONCLUSIONS

1. There is unlimited literature on fractures of the femur in children.
2. The following are the main forms of treatment of fractures of the femur in children:

A. Plaster cast

(adhesive)

B. Plaster cast and extension (calipers

(Steinmann pin)

C. Suspension and extension

Method C. has several subdivisions,—such as: Buck's extension; skeletal traction (calipers and Steinmann pins) in the horizontal or perpendicular position (this method is rarely used and should not be applied except when amputation is being considered or when no other method is applicable. The interference with the epiphyseal growth should always be kept in mind when using skeletal traction in children); suspension and extension of one or both thighs in a perpendicular elevation with adhesive traction to the skin; extension of one or both thighs in a horizontal or perpendicular position, with the aid of the Thomas or the Hodgen splints; or the Bradford frame.

3. Excellent results are obtained by various surgeons by all of the above methods. The suspension and extension method is the most popular.

4. Treatment by open reduction should be the last resort, and usually is not necessary in the treatment of fractures of the femur in children,

5. A summary of the results of the cases treated by plaster cast shows that better results are obtained in the very young than in the older child.

6. A summary of the cases treated in plaster cast and extension shows that better results are obtained in the older child.

7. A summary of the cases treated by suspension and extension shows that better results are obtained in all ages up to the age of ten and eleven years than in either the series treated by plaster cast or in the series treated by plaster cast and extension.

8. A careful physical and radiological examination with careful history of the accident should always be made. Immediate reduction with aid of fluoroscope should be done. Every case of fractured femur should be considered an emergency and immediate treatment should be given following injury.

9. Unnecessary manipulation of the fractured limb should never be done. General anaesthetic, preferably ether, should be given at the time of reduction, unless general condition contraindicates; and, when this is the case, local anaesthetic should be used.

10. Definite attention should be given to the conservation of the muscle and the motion of the adjoining joints, thereby lessening the prolongation of convalescence, as well as preventing grave deformities and permanent disabilities. To aid this, frequent applications of physiotherapy treatment are recommended. Frequent radiographs should be made.

11. Good alignment is most important,—then bone approximation.

12. It is definitely concluded that compensatory lengthening does take place, also correction of poor alignment, but chiefly in patients before the age of eight years.

13. The suspension and extension method is by far the most comfortable dressing, and best results have been obtained by this method. This facilitates frequent daily examinations, frequent checks with X-Ray, dressings in compound wounds; makes easy the application of radiant light, hot baths, and active and passive motion. All of these make for a shorter convalescence and better functional results.

14. Frequent inspection of the patient should be made at outpatient clinic, following discharge from the hospital, and patient should be kept under observation until entirely well.

15. Granting that compensatory lengthening does take place and that serious misalignments are corrected in fractures of the femur in children, no surgeon is justified in neglecting any one of the important things which should be done immediately following a fracture of the femur.

16. In the treatment of children the mental factor is to be considered at all times.

**Report of a Commission Appointed by the American Orthopaedic Association to Study the End Results of Intracapsular Fractures of the Neck of the Femur.** Willis C. Campbell, M.D., Memphis, Tenn., H. Winnett Orr, M.D., Lincoln Neb., Robert B. Osgood, M.D., (Chairman), Boston Mass.

#### SUMMARY OF 1930 REPORT

##### I. Sex incidence.

In this second series of cases, in which are included fractures occurring in persons under sixty years of age, there is a higher percentage of males than in the first series comprising only

fractures occurring in persons over sixty years of age, forty-four per cent as compared to twenty-five per cent.

## II. Mortality.

The mortality rate is lower in this second series of younger cases treated by closed methods, nine and two-tenths per cent., as compared with twenty-eight and six-tenths per cent.

The mortality rate of cases of all ages treated by methods of open surgical attack was two and seven-tenths per cent.

## III. Proved bony union one year or more after treatment was instituted.

In the first series comprising only patients over sixty years of age treated by closed methods, the percentage of proved bony union was thirty and four-tenths. In this second series, comprising mainly cases under sixty years of age treated by closed methods, the percentage of proved bony union was fifty-one and nine-tenths.

The percentage of proved bony union in cases of all ages treated by methods of open surgical attack was eighty-six and four-tenths.

## IV. Entirely satisfactory end results but not proved bony union one year or more after treatment was instituted,

The percentage of satisfactory end results including in this category the cases of proved bony union as under III.) in the first series of cases over sixty years of age treated by closed methods was fifty and four-tenths. In this second series, comprising mainly cases under sixty years of age treated by closed methods, the percentage was fifty-seven and seven-tenths.

The percentage of satisfactory end results in cases of all ages treated by methods of open surgical attack was eighty-one and five-tenths.

## V. Non-union or death one year or more after treatment was instituted, death being presumably attributable to the immediate or remote effect of the fracture.

The percentage of non-union or death in the first series over sixty years of age treated by closed methods was forty-nine and six-tenths. In the second series, comprising mainly cases under sixty years of age treated by closed methods, the percentage was forty-five and eight-tenths.

The percentage of non-union or death in cases of all ages treated by methods of open surgical attack was fourteen and one-tenth.

## VI. Methods of closed treatment.

(a). The method of closed treatment employed in 210 cases of this second series from eight clinics was the Whitman method, either in detail or in principle. Of these, 113, or fifty-three and eight-tenths per cent, resulted in proved bony union at the end of one year or more after the treatment had been instituted.

(b). The Ruth method of closed treatment (See Journal of American Medical Association, XCIV, 169, Jan. 8, 1930), was employed in this second series in twenty-three cases from one clinic. Of these, fifteen or sixty-five and two-tenths per cent resulted in proved bony union at the end of one year or more after treatment had been instituted.

(c). The Orr-Thomson method of closed treatment (See Surgery, Gynecology and Obstetrics,

XLVII, 101, July, 1928), was employed in this second series in twelve cases from one clinic. Of these, eight, or sixty-six and six-tenths per cent resulted in proved bony union at the end of one year or more after treatment had been instituted.

(d). The Albee method of open surgical attack (See Surgery, Gynecology and Obstetrics, XLIX, 810, Dec. 1929), was employed in the second series in thirty-nine cases from one clinic. Of these, thirty-eight, or ninety-seven and four-tenths per cent, resulted in proved bony union at the end of one year or more after treatment had been instituted.

(e). The Smith-Petersen method of open surgical attack (open reduction and special flange nail, unpublished) was employed in this second series in thirty-one cases from two clinics. Of these, twenty-six, or eighty-three and eight-tenths per cent, resulted in proved bony union at the end of one year or more after treatment had been instituted.

**The Commission comments as follows on its findings in this second report:**

1. The percentages of proved bony union and satisfactory end results in unimpacted intracapsular fractures of the neck of the femur in patients under sixty years of age and treated by closed methods are higher than in patients over sixty years of age, and the percentage of non-union or death is lower. The mortality rate of this second younger series is markedly lower.

2. The percentage of proved bony union one year or more after the institution of treatment is higher in the cases of all ages treated by open surgical attack than in the cases treated by closed methods. Only four considerable series of end results of open surgical attack comprising two methods were available to the Commission for study. In the series treated by the bone-peg or Albee method, most of the cases represented un-united fractures. While bony union might be expected to be more difficult to obtain in such cases than in cases of fresh fracture, the element of selection of cases enters and the Commission can justly compare only cases of fresh fracture treated by the special flange nail, or Smith-Petersen method of open surgical attack, with cases of fresh fracture treated by closed methods. The number of end results of this latter method of open surgical attack, available to the Commission, is too small and the results have been obtained by too small a group of surgeons to make it justifiable for the Commission to treatment of unimpacted intracapsular fractures of the neck of the femur.

The Commission takes this opportunity of expressing its gratitude to the various surgeons who have made these reports possible, often at the expense of much labor.

## BOOK REVIEWS

*Chronic Arthritis and Rheumatoid Affections, With Recovery Record*, by Bernard Langdon, M.D., F.A.C.P. Director, The Wyatt Clinic; Member Editorial Staff of "Acta Rheumatologica" of the International League Against Rheumatism; formerly Associate Director, The Rockefeller Commission to France; Secretary, Technical

Board, Milbank Memorial Fund; President and Director, The Desert Sanatorium and Institution of Research; Tucson, Arizona. With The Collaboration of Louis I. Dublin, Ph. D., Statistician, The Metropolitan Life Insurance Company, New York. And Foreword by Dr. J. Van Breemen, Honorary Secretary and Director of Advisory Bureau, The International League Against Rheumatism, Amsterdam, Holland. William Wood & Company, New York. 1930. Cloth, Price \$2.50. 188 pages.

Wyatt notes that Sir Frederick Eve has found "unmistakable evidence of arthritis in the skeletons of pre-historic animals and in the bones of the ancient Egyptians." He notes that from this obscure beginning arthritis and rheumatoid conditions have attained a social and economic importance in most civilized countries that places them ahead of tuberculosis, yet medical interest in them, generally speaking, is still both casual and rare; that the average arthritic receives but little encouragement or help from the general practitioner and that, for this reason, the aid of various "ics" and "isms" is so frequently sought; that in one large clinic in this country approximately 65 per cent of the patients applying for admission because of arthritis or rheumatoid conditions had been through the hands of chiropractors. Wyatt assumes the important fact that these diseases are to a great extent both preventable and curable. Certainly any system of treatment or effort, which may help the physician relieve the suffering from arthritis will be welcomed by the profession.

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**Clinical Allergy, Particularly Asthma and Hay Fever, Mechanism and Treatment.** By Francis M. Rackemann, M.D., Physician To The Massachusetts General Hospital, Instructor in Medicine, Harvard Medical School, Boston, Mass. The MacMillan Co., New York. Price \$10.50. Cloth, 617 pages.

The problems presented by allergy, asthma and hay fever are so far reaching and so profoundly affect every type of practitioner of medicine and surgery that it is most natural that the literature has rapidly attained a large scope in the field of medical publication.

This volume is not only extensive as to its subject matter, but the bibliography cited covers a great range of authorities.

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**Text-Book of Medicine.** Edited by Russell L. Cecil, A.B., M.D., Sc.D., Assistant Professor of Clinical Medicine in Cornell University; Assistant Visiting Physician in Bellevue Hospital, New York City. And Associate Editor for Diseases of the Nervous System, Foster Kennedy, M. D., F.R.S.E., Professor of Neurology in Cornell University; Head of Neurological Department, Bellevue Hospital. Second Edition, Revised and Entirely Reset. 1592 pages. Philadelphia and London: W. B. Saunders Company, 1930. Cloth \$9.00.

Textbooks on medicine, for a number of years past, have been, compared to other branches of medicine, rather rare. For this reason it gives pleasure to receive a work, thoroughly modern, therefore up to the last minute with reference to diagnosis and treatment. In order that one may have a dim realization of the importance of

this volume it is only necessary to note that in addition to the work of Cecil and Kennedy, the volume is made up by the contributions of 135 authorities in the medical profession. The volume is finely arranged, the text makes easy reading and it is only proper to say that it is a highly important addition to modern medicine.

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**The Surgical Clinics of North America.** (Issued serially, one number every other month,) Volume 10, No. 6. Index Number. (Philadelphia Number—December 1930). 316 pages with 95 illustrations. Per Clinic year (February 1930 to December 1930). Paper \$12.00; Cloth \$16.00. Philadelphia and London. W. B. Saunders Company, 1930.

This issue contains a timely clinical lecture on "Cancer of the Rectum," by Dr. John B. Deaver; "Bronchoscopic and General Surgical Clinic," of Drs. Chevalier Jackson and W. Wayne Babcock, among which are clinics on "Diverticulosis of the Esophagus," "Acholic Hepatitis," at autopsy removed liver showed no evidence of bile; one on "Arteriovenous communication between the Femoral Artery and Vein," "Pathologic Fractures," by Dr. Eldridge J. Eliason and V. W. Murray Wright; "Intestinal Tumors," by Dr. Edward J. Klopp; "Complicated Fractures of the Mandible," by Drs. Robert H. Ivy and Lawrence Curtis; "The value of and indications for Encephalography and Ventriculography with discussion of the technic," by Dr. Eugene P. Pendergrass; "Fractures of the Tarsal Scaphoid and of the Os Calcis," by Dr. Edward T. Crossan; "Three Common Surgical Diseases of the Rectum: Hemorrhoids, Prolapse of the Rectum in Children, and Fistula in Ano," by Dr. Astley P. C. Ashurst, and Dr. John W. Klopp; "Acute Suppurative Osteomyelitis," by Dr. Thomas J. Ryan; while Dr. L. K. Ferguson and John Paul North present "Experiences With The Use of Splanchnic and Spinal Anesthesia For Upper Abdominal Operations. A study of 150 cases.

This is a remarkably good issue.

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#### SHOULD COD LIVER OIL BE FLAVORED?

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NUMBER 2

## GLYCOGEN IN MEDICAL AND SURGICAL CONDITIONS

G. H. STAGNER, M.D., C.M.  
ERICK

In this brief discussion of the uses of glycogen, we will not make use of statistical quotations, as in the space allotted me it would not be possible to give very extensive statements, and sometimes partial quotations of statistics are misleading.

In the presentation of this subject, we desire to set forth some of the basic principles involved that may indicate the beneficial use of this remedy. It is the writer's personal opinion that the indiscriminate use of glycogen should not be encouraged, and that its uses should be restricted to the conditions that may be reasonably expected to respond to this remedy.

The basis of this discussion according to McDonagh's theory of the electric and other changes in the body of protein, which has been well presented by De Caux, in the British Medical Journal, issue of November, 1929, wherein he states that, if the blood of a healthy person be examined under dark ground illumination it shows a large number of little globular refractile particles in colloidal suspension, exhibiting Brownain movement. These are known as protein particles; they exist thruout all the tissues of the body, but those of the blood are most convenient for examination. Each protein particle can be compared to a solar system; its sun is the protein nucleus, and its planets, in order of their distance from the nucleus, are fats, amino-acids, urea and uric acid, sugar, inorganic salts, and electrons. The whole system is kept together by water, as is the solar system by gravity. It is always being attacked by hostile substances, whether chemical products or micro-organisms, which tend to break it up. The most distant "planets", since they are the least closely attached, are the first to split off. An invader therefore, would strip off the electrons first, their electrical energy is dissipated in the form of heat and the body

temperature rises. This appears clinically as fever. Then the salts are broken off, those which the plasma cannot hold are excreted in the urine. As the attack develops, the sugar, urea and uric acid, amino-acids, and, lastly, the fats are reft from the protein nucleus and dissolved in the plasma, leaving the nucleus bare. In the end this itself fades away into true solution. As these planets are stripped away one by one, the water in which they swim is set free, the process therefore, is called "dehydration." Some of the particles, however, undergo dispersion, that is to say, they subdivide to a certain point and there stop; there is a numerical increase and, in places where their volume exceeds that of the liquid present, the liquid and solid colloidal phases of the blood may be reversed. Instead of being a suspension of solid particles in a watery medium, it becomes a suspension of liquid globules in a solid medium; in other words it sets like a jelly. This is called gelatinization, and when it happens the patient suffers from intravascular clotting and thrombosis, which in turn, cause the clinical signs of cerebral sinusitis, hemiplegia, pulmonary embolism, and thrombosis, hyperemesis gravidarum, phlegmasia alba dolens, and a host of other conditions.

Gelatinization may occur primarily, it occurs more often secondarily, as a clinical change of hydration. This explains why venous thrombosis is met with more frequently after operations and in the puerperium.

Hydration may be suddenly produced by certain drugs, for instance, with a large nucleus like insulin, which produces a lowering of surface tension. When this happens, the swollen or agglutinated particles may be precipitated from the blood stream in masses large enough to block the capillaries. This change produces the condition known as shock, which may be cerebral, pulmonary, or splanchnic, according to the viscus in which precipitation chiefly takes place.

The behaviour of the protein particles

gives a valuable guide to the anesthetist, first, in preparing the patient and secondly, in averting the ill effects of the shock which are inseparable from all anesthesia. One of the most interesting facts which appear from a study of the protein particles, is that anesthesia and pregnancy affect patients in a very similar way. The essential features of any anesthetic are that it shall produce simultaneously a sudden dehydration of some of the particles and a sudden hydration and precipitation of the rest, in exactly the proportion to cause unconsciousness. Pregnancy produces the same effect, with the difference that the anesthesia may do in seconds what pregnancy does in months. If the proportion is wrong, the same symptoms occur both in anesthesia and pregnancy. Excessive dehydration due to an anesthetic causes vomiting, that due to pregnancy causes hyperemesis gravidarum. In anesthesia and pregnancy alike, the processes of dehydration and dispersion may continue to the stage of gelatinization, and cause some form of venous thrombosis, such as pulmonary embolism. Excessive sudden hydration, on the other hand, produces the familiar condition known as shock. The value of glucose before, during and following surgery, lies in its power of dehydrating rapidly those protein particles which have hydrated by the shock of the anesthetic and the surgical assault.

The processes can be watched under the ultra-microscope. When glucose is run into a field containing a number of slow-moving hydrated water-logged particles, some of which are agglutinated, the effect is almost miraculous; the agglutination breaks up, and the bulky spheres are shattered in a few seconds into multitudes of tiny globules. The same changes no doubt take place in the body, and the clinical effect is to pull a badly shocked patient together in a few minutes. The temperature rises, color returns, sweating ceases, and the patient settles down with a normal respiration. Transfusion of normal blood produces the same effect, and for the same reason; it dehydrates the particles which the operation and the anesthetic have hydrated in excessive numbers.

It is obvious that in treating shock (acute) the first consideration is to give enough glucose at once, and for this reason steps have to be taken to guard against an overdose. If exactly the right amount were given it would all be absorbed by the time hydrated particles were returned to

normal, but in practice it is impossible to gauge the correct dose. Glucose therefore is given intravenously in large doses, and particles are dehydrated or dispersed, and the symptoms of shock pass off. But the protein particles, though they are brought back to normal, will not remain so; because they are not normal, they are unstable. They have lost their electrons, their farthest planets, or else they would never have become hydrated. They most likely proceed past the normal stage into dehydration and dispersion; they are broken up into their component planets and greatly increased in number and if this process is not checked, gelatinization, and thrombosis occur.

There are two ways of checking the dehydration action of glucose, so as to avoid thrombosis. One is to give fifteen to twenty units of insulin, a very powerful hydrator, about two hours following the dose of glucose; usually in this space of time the glucose has exerted its maximum effect. This prevents too many particles being sent into true solution by the glucose. The other method is to give a "conductor," or a substance which will supply the particles with the electrons they need and stabilize them. Conductors are of no value when dehydration has progressed far, but are valuable in the initial stages when only electrons are lost, and also when particles are passing through the normal phase on their way from one abnormal phase to the other. One of the most effective conductors is the symmetrical urea of para-benzoyl-para-amino-benzoyl-1 amino-8-naphthol; 3:6 sodium sulphonate, like insulin, should be injected at the first sign of recovery.

A rough and ready test for determining whether the vomiting is caused or due to splanchnic shock, caused by the precipitation of hydrated protein particles in the abdominal viscera, or to dehydration of protein particles, is to draw off some blood in a syringe. If the blood flows readily and is bright red the protein particles are probably hydrated, but if the blood flows with difficulty, clots rapidly, and is dark in color the particles are probably dehydrated. It is most important to determine which condition is present, as the wrong treatment will only accentuate the disorder it is desired to remedy.

Surgeons, have recognized the value of glucose without, for the most part, understanding its action. The general tendency is to focus attention on ketosis, which is

one of the by-products of shock, and to counteract it by giving glucose in the belief that it replaces the large quantities of sugar consumed in the state of shock or under anesthesia.

In giving glucose, a ten percent solution, at 100-F., if given slowly when used pre-operative, will be stored up in the liver in the form of glycogen, and will be let loose in the blood stream in the form of glucose when, or as required. This is good practice, to prevent shock from surgical trauma or anesthesia; if it should be given too fast the kidneys will excrete it very rapidly, and the effort will be wasted.

We find it advisable to give glucose before a severe operation; where the liver efficiency is suspected, for example, where there is a history of jaundice, or where the metabolic rate is high; for example in Grave's disease and especially when the patient is undernourished.

Always give glucose after a severe operation when a blood transfusion is impractical or impossible. Give glucose after any long anesthetic, or where there has been heavy loss of blood. When the patient shows signs of shock, cerebral, pulmonary, or splanchnic. Where glucose has not been given before the anesthetic. Especially where a rough surgeon has operated, or where it has been necessary to use more than the ordinary amount of anesthetic. Where there is a history of epilepsy.

A case of streptococcic sore throat recently came under our care in connection with other doctors. This woman had been sick about a month. The test as outlined revealed dehydration, the blood stream gelatinous, and dark, her skin looked like parchment, her condition seemed one of collapse and imminent death; we gave her twenty c.c. of a fifty percent solution of glucose in 700 c.c. of normal salt solution, which was repeated each day for three days. Following the first infusion, she became comfortable and following the second treatment color returned to her lips, and skin, and she made a reasonably rapid recovery.

Another case recently treated was a man who had a severe gastric hemorrhage, having lost a considerable quantity of blood. This man's test revealed that he was hydrated, and he reacted quite quickly to the glucose, in fact so quickly that we were compelled to use the buffer within a short period following the glucose, wherein the

case of dehydration did not require a buffer. We are not as yet able to say as to the question of individual susceptibility in the administration of glucose; but we have found that its actions should be carefully watched, and the neutralization not neglected, upon the first manifestations.

## THE ACUTE SURGICAL ABDOMEN

ROY FISHER, M.D.  
Frederick Clinic Hospital  
FREDERICK

A great many papers have been written on this subject in recent years. This, however, only emphasizes its importance and too much can not be said about "Acute Surgical Abdomens", the most common condition confronted in surgical practice.

These patients demand early relief if life is to be preserved and because of the vast variety of surgical conditions that may be present in the abdomen it is not always possible to make a correct pre-operative diagnosis.

By following a certain routine in these cases diagnosis is not always as difficult as it might at first seem.

The history as complete as possible is the first thing to obtain, remembering of course, that under certain circumstances it may not be reliable.

In children the history must be given by parents or relatives and is at times misleading. In children one must think of the most common conditions such as appendicitis and its complications, pyloric stenosis, strangulated hernia, Hirschsprung's disease, intussusception, volvulus and always the possibility of a pneumonia.

In young adults tuberculosis of the genito-urinary tract, the intestinal tract and peritoneum must always be kept in mind.

In women during the child bearing period of life the complications of pregnancy, abortion and venereal diseases must not be overlooked.

In later life gastric and duodenal ulcers, especially in cases with a history of stomach trouble, kidney and gall-bladder disease, tumors of the adnexa, intestinal obstruction and pancreatic disease may all give symptoms referable to the abdomen and one must never forget the gastric crisis of syphilis and the abdominal pain that occurs in agina pectoris.

After obtaining as much history as pos-

sible one must consider carefully the most common primary causes which I outline as follows:

1. *Acute peritonitis (circumscribed or general):*

- a. From a perforation of any of the organs from disease, (ulcers of the stomach, duodenum, or intestine or typhoid, tuberculous or luetic ulcers) or from injury.
- b. Rupture of an abscess, (appendix, pyosalpinx, liver or kidney).
- c. Acute pancreatitis.

2. *Hemorrhage into the abdominal cavity which may be due to:*

- a. Perforation of a viscus from injury or disease.
- b. Ruptured ectopic pregnancy.
- c. Ruptured hemorrhagic cyst of the pancreas.
- d. Rupture of an aneurism.
- e. Rupture of the uterus during labor.

3. *Intestinal obstruction which may be due to:*

- a. Adhesions from former operations or inflammatory processes.
- b. Strangulated hernia.
- c. Strictures from disease, (tuberculosis, syphilis and malignancy).
- d. Plugging of the lumen by fecal impactions or foreign bodies.
- e. Pressure of a growth outside the intestinal tract constricting its lumen.

4. *Embolism of the mesenteric artery.*  
5. *Torsion and inflammation of organs:*

- a. Acute appendicitis.
- b. Acute cholecystitis.
- c. Acute pancreatitis.
- d. Acute intussusception, (twisted renal, splenic or ovarian cyst pedicle).
- e. Strangulated omental hernia.
- 6. *Colic:*
- a. Renal.
- b. Biliary.
- c. Acute gastritis.
- d. Lead poisoning.

After the history has been taken and the most common causes considered a thorough physical examination should be done, observing closely all signs and symptoms. The signs to look for in the order of their importance are:

1. *The general attitude and facial expression of the patient:*

This is of great importance and must not be overlooked and often times with a good history will make the diagnosis alone.

2. *Rigidity of the abdominal muscles.*

This occurs, as we know, in all acute inflammatory conditions of the abdominal organs. It may be localized or general. It varies in degree and intensity, being as a rule greater above than below the umbilical region. It is "boardlike" in perforations and very moderate in internal hemorrhage. A generalized rigidity together with gaseous distension of the abdomen accompanied by high temperature and leucocytosis is almost positive of general peritonitis. In intestinal obstruction the rigidity is not so marked and violent peristalsis is often times observed in contrast to the "silent abdomen" of general peritonitis.

Often times in a pneumonia abdominal rigidity is present but close observation reveals it greater on the affected side and with the chest signs and symptoms should not be misleading.

3. *Abdominal distension.*

This is fairly constant and may be general or localized the same as abdominal rigidity. It is due to gas or fluid and should be easily differentiated. In a general peritonitis distension is variable depending upon how early the case is seen and as a rule is not reduced even though flatus may be passed.

In intestinal obstruction the lower the obstruction the greater the distension is a fairly constant rule.

In acute pancreatitis the distension is high and accompanied by that marked excruciating pain and profound asthenia.

Distension from fluid is rarely encountered in acute surgical abdomens. It is occasionally found in traumatic cases suffering from a ruptured liver, urinary bladder or intestine. It is occasionally met with in the sudden rupture of a large ovarian cyst or the rupture of a large abscess, (kidney, liver or appendiceal.)

4. *Temperature, pulse and blood examination.*

Temperature varies greatly. In shock we know that it is subnormal accompanied by a weak pulse, low systolic pressure and usually a normal blood count.

In internal hemorrhage temperature is normal and repeated blood examinations

showing a constant decrease in red blood cells and hemoglobin together with a fast, weak pulse are positive.

In general peritonitis there is a moderate increase in temperature. The pulse is weak and increases rapidly in rate until the end. Leucocytosis may be high or low.

In intestinal obstruction temperature as a rule is not high. The pulse is rapid with a volume about normal and blood examination is usually normal.

In localized abscesses the temperature has the characteristic evening rise, the pulse following the temperature curve. There is a secondary anemia and a leucocytosis.

The symptoms in the order of their importance are:

### *1. Pain, (its kind and character)*

Pain in acute pancreatitis and in embolism of the mesenteric artery is so excruciating that it is not often mistaken. This pain may be so severe that the patient is not relieved by opiates.

The pain in general peritonitis is continuous and is exaggerated by the slightest movement.

The pain of intestinal colic is paroxysmal.

In lead colic it is severe but usually the discoloration of the gums and history of occupation are helpful in differentiation.

In biliary colic the pain is characteristic in its sudden onset and its radiation through the back and into the shoulder.

In renal colic it is severe but usually referred downward along the course of the ureter.

The pain of intestinal obstruction is always severe and continuous. With pain from gastric or duodenal ulcer we usually get the history of relief from soda, disappearance and recurrence, and as a rule ulcers are not hard to diagnose. As before stated one must ever be on guard for the gastric pain in lues, the pain in pneumonia and the pain in angina pectoris, but each is easily differentiated if kept in mind.

### *2. Nausea and Vomiting.*

The diagnostic importance of nausea and vomiting is variable. We know that food often vomited two hours after being taken, highly acid in character, accompanied by severe pain in the epigastrium favors gastric ulcer. The same symptoms

with a longer interval between ingestion and vomiting usually mean duodenal ulcer.

In general peritonitis the vomiting is seldom faecaloid but of a brownish color and feculent odor.

Projectile vomiting in a baby is usually a symptom of pyloric stenosis.

In intestinal obstruction, if high, the vomiting is violent but does not contain fecal matter. When the obstruction is low the vomiting is less severe but may become fecal in character. Vomiting in appendicitis, gall bladder and renal colic is not a constant finding and therefore is not of great importance.

### *3. Acute Constipation.*

This condition is found almost constantly in acute abdominal disease. The only exception being in certain cases of intussusception.

By following this outline it is usually possible to make an intelligent working diagnosis. After this has been done the question arises whether or not there is urgency for surgical treatment.

I think it is good judgment to place children and elderly people in a class by themselves. Acute abdominal disorders as a rule are always urgent at the two extremes of life, and there must be very little delay in these cases. I think one should never wait longer than a few hours. The patient must be placed where immediate operation can be done if necessary. In the few cases where even a working diagnosis has not been thoroughly established and the patient's condition is unimproved, exploration is indicated in the hope that the condition will be found and treatment then instituted. We know that early exploratory operation often saves life, when in all probability delay would prove fatal.

## ACUTE SURGICAL ABDOMEN

V. C. TISDAL, M.D.  
ELK CITY

In presenting this paper on surgical diagnosis of the abdomen I wish to make my deductions and differentiations from gall-bladder diseases.

The differential diagnosis of gall-bladder disease from other affections in the upper abdomen is at all times an extremely difficult and absorbing problem, both for the surgeon and the internist. It is plainly

obvious that a colic in the right hypochondriac region followed by jaundice, points to some disturbance in the bile passage-ways, but when these symptoms simulate the pain of a duodenal or gastric ulcer, a high appendix, or even a stone in the kidney, or acute pancreatitis, rendering of an exact diagnosis becomes increasingly difficult. To associate disease of the gall-bladder or bile passage-ways, always with stout individuals past forty, usually good livers, is a fallacy which must not be adhered to very closely, as illustrated by a patient recently operated upon—a woman weighing about two hundred pounds—had symptoms resembling attacks of gall-stone colic which had persisted for six years.

The pain was severe, compelling hypodermics of morphine. At operation we found a pyloroduodenal ulcer of the hard, chronic indurated type, the so-called cured ulcer of the internist.

At this point I wish to report two case histories in detail:

#### CASE HISTORY NUMBER 7054

A. R. G., Elk City, Oklahoma. White, male, age. 33, weight 145. Occupation, manager of Planters Gin Co. Entered the Tisdal hospital at Elk City, Oklahoma, on January 18, 1930, at 1:00 a.m. on a stretcher.

*Complaint* on admission was pain in lower right quadrant abdomen and sore throat.

*Present Illness:* Subjective history shows that on the morning of January 17, 1930, the patient got up with a sore throat. He came to my office complaining of sore throat and a chilly sensation and general malaise and aching all over. At 8:00 p.m., January 17th, 1930, the patient had very severe pain and cramping in the abdomen, first felt in the upper gastric region. Began vomiting; the pain and vomiting continued persistently until 12:30 p.m., when I was called to his home. At this time the pain was down in the right lower quadrant of abdomen and so severe that the patient was unable to lie on the bed and many times during my visit was on the floor trying to get some relief from the pain.

*Past History:* Ordinary diseases of childhood; influenza in 1918 while in the U.S. Navy service. He had a hemorrhoidectomy operation while in the U.S. Navy; no accidents and no other disease of any sequences.

*Family History:* Father died at age of 72 years, cause not known. Mother living and well. One sister 46 years of age, living and well. A twin sister 33 years of age, well. Two brothers, one of them well, one of them suffering from articular rheumatism. Wife 27 years of age and in good health, two children 2 and 7 years respectively, both in good health.

*Physical Examination:* Facial expression that of shock and suffering very severe pain; nose negative; eyes normal; mouth, two teeth missing and some fillings in 3 or 4 other teeth; throat, highly red and inflamed, with small white patches over tonsils and pillars, showing an acute infected throat; lungs were normal as to rales; examination by palpation, percussion and auscultation; heart sounds normal; blood pressure 126/84; abdominal region—the whole abdominal wall was somewhat rigid, right rectus being tense. The most comfortable position assumed by patient was lying on his back with knees flexed. The patient's greatest tenderness was over McBurney's point. Temperature on admittance to the hospital was 101. Pulse. 130. He vomited twice while the physical examination was being made.

*Laboratory Findings:* Urine, catheterized specimen, 100 c.c. Color dark red; appearance turbid; reaction acid; specific gravity 1015; albumen, slight trace; glucose negative; acetone negative; diacetic acid positive; indican negative; R.B.C. negative; W.B.C. none; casts none; organisms none; cells none. This report was made at 2:00 a.m. January 18th, 1930. Blood count, erythrocytes 4,800,000; leucocytes 16,800, on date of January 18th, 1930. There was no other laboratory work done.

*Pre-operative Diagnosis:* Acute streptococcus sore throat complicated by (1) acute appendicitis; (2) Possible right ureteral stone. Indications for operation: (1) Pain. (2) Rigidity of the right rectus muscle. (3) Pain being over McBurney's point. (4) Vomiting, but the vomiting was more than usual in the ordinary case of appendicitis. (5) Elevation of pulse and temperature. Part of which might be accounted for by the acute tonsillitis. (6) The infection from his throat spreading to the appendix.

*Description of Operative Technique and Operating findings:* The patient was prepared in our routine way. First, catheterized; second, the abdomen was shaved

and painted with 3% iodine, covered with a sterile towel. At this time the patient received his first hypodermic since present illness began. One-fourth grain of morphine was given and he was carried to the operating room on a stretcher and given ethylene and oxygen anesthetic. The abdomen was painted with iodine and allowed to dry, then the iodine was removed with alcohol; the surplus alcohol was removed with a dry sponge and the patient was then draped in the ordinary way and an incision was made over McBurney's point two inches long down to the muscles. Then a separation of the muscles was done and the peritoneum opened. The appendix was delivered very easily, being highly inflamed and a very large fecalith was found obstructing the lumen of the appendix. There was no free pus, therefore the meso-appendix was ligated with Pagenstecher linen, the purse-string suture being carried around the cecum at the base of the appendix; the base of the appendix was clamped and tied off with a No. 2 plain catgut, re-clamped and amputated. The stump being cauterized with phenol and neutralized with alcohol. The abdomen was closed by layers. The peritoneum was closed with No. 2 plain catgut. Aponeurosis was closed with No. 2 catgut. Skin and aponeurosis was closed with silkworm gut interrupted figure of eight. Skin approximation with skin clips. The anesthetic started at 3:40 a.m. and ended at 3:55 a.m. The operating staff was as follows: Surgeon, Dr. V. C. Tisdal; assistant, Dr. L. V. Baker; assistant, Edith Crites, R.N., Instrument Nurse, Dora Hart, Student Nurse; Circulating Nurse, Marie Delp, R.N.

Gross examination of tissue showed highly inflamed appendix three inches in length containing a fecalith. No microscopical examination was made of tissue removed.

*Final Diagnosis:* Acute streptococcus sore throat complicated by acute appendicitis.

*Progress noted during stay in hospital:* Three hours after operation the patient went into shock, pulse became very weak and radial pulse could hardly be felt. The pupils relaxed. Patient became cyanotic, the skin cold and clammy; he was immediately given  $\frac{1}{4}$  grain of morphine, 1/40th grain of strychnin and 1/150th of atropine and hypodermoclysis of normal saline solution. 800 c.c. were given under the breast. Glucose sodium bicarbonate were started by

proctoclysis. These stimulants were given at 6:30 and at 7:30 he received caffeine sodium-benzoate. For twelve hours he had a very stormy time and it was necessary to repeat all the stimulants two or three times during the day. By midnight some twenty-one hours following the operation he rallied, cynosis clearing up, pulse returned to a fair volume, respiration and general condition was fairly satisfactory. Pulse came down to 104 and temperature to 103, but still suffering some pain in the abdomen. He had hot water bottles and the D.T. light over his bed almost continuously and for twelve hours it was necessary to bandage his legs and arms and elevate the foot of the bed two and one-half feet. At twelve o'clock noon he voided 4 ounces of urine and the specimen was sent to the laboratory. Laboratory findings showed slight trace of albumen, specific gravity 1018; diacetic acid positive; microscopic examination revealed no abnormality. Patient perspired very freely for twenty-four hours following the operation. He received numerous doses of digitalis, caffeine citrate, hypodermoclysis and strychnin and the whole category of stimulants. The throat at the end of forty-eight hours had begun to clear up. His pulse ranging from 116 to 140, temperature 103 to 100.8, respiration from 17 to 28. The patient stated that he felt better at the end of forty-eight hours and received the general a.m. cares. During the next succeeding forty-eight hours he continued to receive digitalis 1 c.c. ampule every four to six hours with  $\frac{1}{8}$ th of morphine with orders to turn the patient every three hours; however, the pulse average was around 120 with temperature on the decline. He was voiding during this time on an average of about 30 ounces of urine and received about 800 c.c. of saline hypodermoclysis. There was very little change in condition of patient up to the beginning of the sixth day when he began to develop a jaundice, first manifested in the sclera and then noticeable in the skin. The urine showed bile with a large number of blood cells and an increased amount of albumen. At noon on the sixth day the patient had a very severe chill and voided only 14 ounces during the twenty-four hours of the sixth day. His condition grew markedly worse, the abdomen was distended and hiccoughs began, lasting from thirty minutes to two hours. At this time he was given 50 c.c. of a 50% solution of glucose from which he received a rather marked reaction, having a chill and temperature

rising to 106. The next twenty-four hours he voided 24 c.c. of urine following an administration of 500 c.c. of blood administered by indirect method and sodium citrate. His jaundice became worse, the gas pains more pronounced as was the abdominal distension. This patient being my brother-in-law, I asked for more consultation. Up to this time I had only had my own staff in council. Dr. McClain Rogers of Clinton, Oklahoma, was called, along with three other outside men, Dr. DeWitt Stone of Payne, and Drs. J. E. and Oren Standifer of Elk City. The hiccoughs continued to be more severe and of longer duration. The general condition of patient grew progressively worse and he had three 100 c.c. of blood in the muscle and at the suggestion of the consultants received 300 more c.c. of blood in the veins thirty-two hours after the first transfusion. On the morning of the eighth day we received 10 ounces of urine while we gave him 4,000 c.c. of fluid by hypodermoclysis and intravenously. At 10:00 a.m. on the ninth day he had a very severe hemorrhage from the abdominal wall (one day after the sutures were removed). The hemorrhage was stopped by ligating a vessel in the abdominal wall. At 8:00 o'clock on the evening of the ninth day he bursted the whole incision after a tube was placed in the ileum about four feet from the ileocecal valve.

All stimulants above named were continued through the entire course of treatment and there were only four ounces of urine recovered from 3:00 a.m. morning of the ninth day until 3:00 a.m. the morning of the tenth day when the patient died.

#### CASE HISTORY NUMBER 7144

V.E.H., Elk City, Oklahoma. White, male, age 27. Occupation, proprietor of furniture store. Admitted to the Tisdal hospital, Elk City, Oklahoma, on March 18, 1930, at 8:30 p.m. Entered on a stretcher. Operated 3-19-1930.

*Complaint on admission:* Pain over the whole abdomen, sore throat, vomiting and fever.

*Present Illness:* Subjective history shows that on March 14, 1930, patient developed a sore throat which his attending physician diagnosed as follicular tonsillitis and pharyngitis. With this he had temperature of 102 to 103, a general malaise, and pain over the whole body. This continued over the 14th and 15th and on the 16th the patient felt better and was out for a car ride for three hours. On the

seventeenth he went to his store but felt badly and in the evening attended a Chamber of Commerce meeting. Went home at 11:00 p.m. and retired feeling fairly well but still some soreness in his throat although suffering very little pain. At 4:00 a.m. he was awakened with very severe pain in the abdomen. He drank hot water which he immediately vomited up. His wife gave him an enema with no results and at 7:00 a.m. called his family physician. His pain was so great and his abdomen so very tender that his physician gave him a hypodermic of  $\frac{1}{4}$  grain of morphine so that he could be kept quiet long enough to make a physical examination, but he did not receive any relief from the hypodermic. At 9:00 o'clock the morning of March 18th, his physician gave him a No. 1 H.M.C. At the end of one and one-half hours he fell asleep for thirty minutes, awakening at 11:00 a.m. with pain more severe in the lower left quadrant of the abdomen and vomiting. He did not vomit any blood and at this time was given an S.S. enema from which a small bowel movement was obtained, but did not relieve the pain and at 1:00 p.m. he was given another hypodermic of morphine. The pain continued the rest of the evening and at 7:00 p.m. I was called for consultation. Being out of town a distance of 35 miles and unable to return at once another consultant was called and the patient was brought to the Tisdal Hospital at 8:00 p.m. At 10:30 p.m. I returned and found the patient suffering severe pain, a board-like abdomen and too tender over the whole of abdomen to gain much by physical examination.

*Past History:* Ordinary diseases of childhood, had tonsillitis up to the age of 15 years when I removed his tonsils, following which he had a mild pneumonia. No accidents, no deformities. For past two years had not been able to eat food with spice in it without discomfort to stomach,

*Family History:* Father and mother living and well. One sister living and well. Three brothers living and well.

*Physical Examination:* Revealed a young man 27 years old, dark hair and eyes, well nourished, 5 feet 11 inches in height, weight 160 pounds, temperature 102, pulse 100, respiration 36, eyes, conjunctiva red and vessels engorged. Facial expression that of a man suffering pain, pinched and drawn, mouth and tongue dry, mucous membrane dry. No rales were

heard on auscultation of lungs, palpation and percussion did not reveal any abnormality, contour of the chest was normal, heart sound apex beats were normal in every way. Blood pressure was 118/84. Kidney, liver and spleen could not be palpated due to the pain that was caused in the examination. The whole abdominal wall was board-like, but no abdominal examination of any consequence could be made due to the extreme tenderness. There was no distention of the abdominal wall due to the rigidity of the irritation in the inside.

*Clinical Laboratory:* Blood count revealed 5,050,000 erythrocytes, leucocytes 14,600, polymorphioryia leucocytes 72, lymphocytes 18. Urinalysis, catheterized specimen 70 c.c., color dark straw appearance, apparently bloody acid reaction, specific gravity 1030, albumen none, sugar none, acetone none, diacetic acid none, indican none, R.B.C. positive, large number, W.B.C. positive, casts negative, organisms positive, streptococcus and staphylococcus colon bacillus. There was succeeding laboratory work done. Urine examination and blood counts made. Leucocytes increased from 14,600 to 16,200 in 8 hours and in six hours more to 18,100 with 8% increase in polymorphioryia leucocytes.

*Pre-operative Diagnosis:* I saw the case first at 10:30 p.m. March 18th, 1930. The patient was in severe shock and I could not make a definite diagnosis but suspected a ruptured viscus. I was in consultation with his attending physician, Dr. E. S. Kilpatrick, Dr. L. V. Baker of Elk City, Oklahoma, and Dr. McClain Rogers of Clinton, Oklahoma, and Dr. J. E. Standifer of Elk City, Oklahoma. I asked to get Dr. McClain Rogers of Clinton, to see the case but upon Dr. Rogers' arrival the condition of the patient was such that he was unable to make an examination. At 1:30 on the morning of March 19th, 1930, we decided to give the patient more glucose and hypodermoclysis of saline solution and see him at 7:30 a.m. with the view of exploratory incision. No diagnosis being made.

*Description of Operative Technique and Operative Findings:* The patient's abdomen was shaved and prepared by being

painted with 3% iodine. He was given  $\frac{3}{8}$  grain of morphine catheterized and sent to the operating room at 8:45 a.m. He was given an ethylene nitroxide and ether anesthetic, his abdomen was repainted with iodine, cleaned off with alcohol, draped, and right rectus incision nine inches long was made. In passing through the peritoneum a large amount of seropurulent fluid flowed out through the incision, greyish color, and simulated gastric contents and with such a large pool coming from the right and left kidney regions that the stomach was immediately attacked. There was an agglutination of the stomach and omentum, also the bowels. The lumen of bowels were markedly distended, very red and highly inflamed. There was no gas coming from any part of the stomach examined and both myself and Dr. Rogers examined the stomach very carefully but were unable to identify any ulcer in the stomach. The gall-bladder was considerably distended, discolored (yellow) showing previous infection. The appendix was removed, three cigarette and one hardened rubber drain were placed in the pelvis, one hard rubber drain was placed through a puncture wound to each kidney region. The peritoneum was closed with No. 2 chromic catgut, interrupted No. 2 plain suture in the muscle, No. 2 chromic closing the aponeurosis, the skin closed with figure of eight silkworm gut suture.

*Gross examination of tissue:* Appendix showed to be red and inflamed upon inspection, the lumen of the appendix was empty.

*Final Diagnosis:* Perforating ulcer of the cardiac end of the stomach posterior surface about  $1\frac{1}{2}$  inches from the cardiac end, revealed on post mortem.

*Progress noted during stay in hospital:* After the patient returned from the operating room hyodermoclysis of normal saline solution was immediately started, camphor and oil 1 c.c. was given, following in one hour with  $1/40$ th of strychnin,  $1/100$  of atropine and  $1/4$  grain of morphine. At 5:00 p.m. his temperature was 106, pulse 160 and respiration 28. At 12:30 a.m. his temperature was 107 and the pulse could not be counted. At 2:30 a.m. his temperature reached 107.4 and the patient died at 2:45 a.m., March 20th, 1930.

*Operating Staff:* Surgeons, Dr. V. C. Tisdal and Dr. McClain Rogers; assistant, Edith Crites, R.N.; Instrument Nurse, Dora Hart, Student Nurse; Sponge Nurse, Iva Cochran, R.N.

Anesthetic started at 8:45 a.m. stopped at 10:12 a.m. Operating began at 8:54 closed at 10:12 a.m.

I wish to impress the fact that the rigidity of perforating ulcer of the stomach or upper bowels, is alone in its muscular rigidity, being board-like and coming on immediately following the perforation. This condition is caused as we all know by the acid chemicals of the stomach or first part of the small intestines and the only thing that simulates so very closely is acute pancreatitis. Abdominal pain which cannot be controlled by morphine suggests a very serious condition which almost without exception requires operative interference.

Cholelithiasis may be found in lean individuals, which in fact at times adds more difficulties in differentiating between gall-bladder disease and pyloric ulcers, because in these patients one would expect to find a lesion of the stomach or duodenum. Again a high appendix and gall-bladder disease are often taken one for the other. It is at times impossible to differentiate between the two afflictions until the patient has been anesthetized or exploratory incision made and then many times the affection is so great or condition such that exploration does not reveal the condition without a great deal of trauma as illustrated in one of the case histories read.

In renal colic there are certain urinary reflex pains, however, the physical examination must assist materially in the diagnosis. In gall-bladder disease tenderness is found under and just below the costal border; in renal colic the point of greatest tenderness is in the loin space, while many cases arise where it is absolutely impossible to make a differential diagnosis between a high appendix and gall-bladder disease.

In conclusion I shall feel that this paper has rendered its purpose if it will wake us up to the important fact of our responsibilities of recognizing the acute surgical abdomen.

## "GOITER"

FOWLER BORDER, M.D.  
The Border-McGregor Hospital and Clinic  
MANGUM

Divers classifications of goiter have been perennially appearing in the Journals and text books for the past twenty-five years. These classifications are based mostly upon the individual surgeon's viewpoint of goiter and not especially upon any concrete facts that can be applied by the average physician to any one type of goiter. In fact there has been such an avalanche of classifications based solely upon the eccentricity and whims of the individual author that the whole subject has become so confusing that it is absolutely essential that we, as clinicians, come down off our high horse, so to speak, and at least from the clinical viewpoint, classify goiters on a rational and sane basis, such that even the general practitioner who sees only an occasional case may intelligently apply the classification and feel that in doing so, that his conception upon which the classification is based is founded upon basic facts that are accepted by all intelligent physicians.

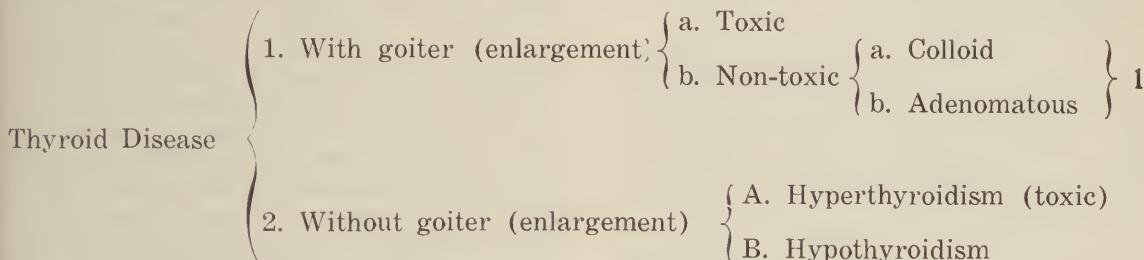
Then with the above ideas set forth, it behooves us to discuss goiter in a rational way, forgetting for a time our own little pet ideas and *cute* (pardon the term) special classifications.

In the first place, goiter as ordinarily used is a misnomer, because goiter literally means a tumor or enlargement of the thyroid gland. As everyone should know the actual enlargement of the gland plays only a nominal part in thyroid disease. Some of the most toxic glands show no enlargement whatever. This latter fact alone accounts for some of the misunderstanding arising when we attempt to standardize classifications. Also the prevailing idea among the less experienced that a tumor (goiter) of the gland must be present if disease exists, has been responsible for thousands of toxic cases going undetected, until the symptoms had become severe. This being obvious then let's speak of *thyroid disease* and *not* goiter, when discussing either physiological or histological abnormality of this little human dynamo.

Now, if we can think of *thyroid disease* in an abstract sense, and not vision goiter,

we can easily and readily arrive at a sane and rational classification. From a clinical standpoint then, our first approach to the mooted subject would be thyroid disease classified as follows:

not by any means necessary in thyroid disease. We see many cases of diseased thyroid not diagnosed by the family physicians because no enlargement of the thyroid was present.



1. NOTE: Further differential diagnosis based upon histological variations should be of interest only to the pathologist.

The above is the simplest, most common sense classification from the clinical standpoint that can possibly be evolved, and one that we believe any intelligent practitioner can understand and readily apply to any thyroid case coming under his observation. Then, when he has properly classified his patient under the above system he can safely and intelligently advise his patient as to the proper treatment, or else refer him to a colleague who is better equipped to treat any one given type. All goiter (enlarged) types of thyroid disease are potentially surgical, but the time of operating and the preliminary treatment to such a step, depends entirely of course, upon whether the goiter (enlarged) type gland, is toxic or non-toxic.

The second type of thyroid disease cases, i. e. thyroid disease without goiter (enlargement) is either specifically surgical (hyperthyroidism) or specifically medical (hypothyroidism). This then, is the sum total of all we may need to know for the purpose of scientifically classifying and treating thyroid disease.

In expounding the above somewhat evolutionary idea of classification of type and treatment, we have been induced to do so, by the phenomenal increase in the past ten years of thyroid disease in this section of the country.

Twenty-five years ago, when we did our first goiter operations in this hospital, thyroid disease was comparatively rare in the Southwest Oklahoma counties and the Panhandle of Texas, but today it is becoming one of our more frequent major operations. One thing we would like to impress on the practitioner is the fact that the presence of goiter (enlargement) is

We have also noticed an apparent increase in hypothyroidism cases. Just why this should be so, we do not know, but we have observed enough thyroid disease cases of all the above mentioned types to stimulate us in helping to devise a system of classification and treatment that can be used to the benefit of the patient by the general practitioner.

## LOCAL ANESTHESIA IN A COUNTRY HOSPITAL BY A COUNTRY SURGEON

C. CURTIS ALLEN  
FREDERICK

Perhaps most of the problems of anesthesia in the country hospital are reduced to a choice between chloroform and ether. This is as it should be, for they are more universally understood than any others. However, the newer anesthetics and combinations of anesthetics, both local and general, are rapidly enlarging their fields of usefulness; and it is my belief that as we come to use them oftener and to understand them better, we shall thereby contribute largely to the comfort of our patients and to the safety of our surgical procedures.

The number of drugs employed for local anesthesia is ever increasing. The usefulness of many of them has been satisfactorily demonstrated; yet, aside from novocain, their merits are such as appeal almost exclusively to the specialists. However, if one is using local anesthesia he should become familiar with the use of more than one drug. This allows a certain versatility. But for the major part of his

work, I believe he should choose his anesthetic as he does his wife—after falling in love with it—and that a reasonable period of courtship should follow; then, having learned its disposition, he will be better able to make the most of its merits and to avoid its disadvantages.

Novocain has been selected by the masters as the best to date for general use, and its limitations have been defined by them. There are a few others, however, that we find useful in our country hospital. Among these are butyn, quinine and urea hydrochloride and anesthesin or aposthesin. We have butyn made up in sterile .5% solution by the operating room nurse and placed on our office desks in 30 cc rubber stoppered containers. This we find convenient for all emergency minor work. For tonsillectomies we use it routinely because it is effective almost instantly, and in such small amounts that never more than 10 to 15 cubic centimeters need be used for the entire operation. For hemorrhoids alone, we are partial to the 1% quinine and urea HC1 by infiltration because the anesthesia often outlasts the period of postoperative pain. The induction of anesthesia in this area is not always painless. It may be made so by first injecting 20 cc of 1% novocain with two MM 1-1000 adrenalin HC1 into the sacral canal. This is double anesthesia, but it serves a double purpose, and it is just as logical as the morphine and atropine that are routinely given hypodermically before all operations. But pain will sometimes follow hemorrhoid operations in spite of all precautions; so in addition to the opiates, we find that anesthesin, locally applied, is very helpful. We find it useful, also, in painful abrasions, burns and many other superficial lesions.

In the larger hospitals the necessity for quick and reliable anesthesia is imperative, yet this necessity does not operate to limit the use of local, regional, and combination anesthesia when any margin of safety to the patient can be gained thereby. In such places a trained anesthetist is indispensable and a larger personnel is always available. In the country hospital, on the other hand, where the operating room personnel consists of the surgeon, an assistant, and the operating room nurse, the necessity for speed is not applicable, for there is not likely to be more than the one major operation that day, and a little more time may very properly be taken to induce a safer anesthesia. The available anesthet-

ist may be well trained. Usually he is not; for it often happens that the patient chooses his family physician to "administer the chloroform," and the chances are that the good physician is much more adept in other ways. So I have come to believe that the country surgeon may very profitably train himself to use a larger number of local and regional procedures. Certainly the time consumed is appreciably increased, but the comfort to the patient is inestimable, and the safety to him is usually increased by just so much as a general anesthetic may be dispensed with. This is especially true since the profession has been presented with the working tools of basic anesthesia and taught their uses.

Many patients dread a general anesthetic far more than they do a major operation. Therein lies an important business consideration if one is prepared to tell a patient, convincingly, his operation may be done without having to go to sleep at all. This difference to the patient, more often than not, is perfectly justifiable, and was well expressed recently by one on whom we had an opportunity to use both kinds of anesthesia within a week. "Under ether," he remarked, "I felt as if I would surely strangle to death." He very nearly did. Under spinal, a few days later, he felt no discomforts whatsoever. A similar test of both methods presented itself to us in the case of a woman on whom it became necessary to amputate both her breasts for carcinoma. Following her first operation under ether she spent three miserable days in bed because of nausea and the usual discomforts incident to general anesthesia, and she kept her bed of necessity for five days altogether. Some months later, when a small lump came in her other breast, she kept the fact a secret until the tumor had enlarged to the size of an ordinary egg, because she so much dreaded another anesthetic. When informed that it could be done without any inhalation anesthesia, she readily consented, and the operation was performed under a combination of brachial plexus block and sodium amyta intravenously. It took longer, but there was no nausea. She sat up on the second, was out of bed entirely on the third, and was allowed to go home on the fifth postoperative day. She remarked that she would not have delayed so long had she known before that inhalation anesthesia was not indispensable to major surgery. And we have had encouraging repetitions of similar experiences in just

so much as we have extended our use of regional and combined anesthesia. Especially gratifying to us has been our experience with spinal and trans-sacral block, although patients who have had cystoscopic examinations under other anesthetics, or none at all, were very grateful for caudal block alone. For cystoscopy it is an ideal anesthetic.

We have had our failures with local and regional anesthesia, but they were not more disappointing affairs than some of the operations we have had to do on strangling, straining, suffocated patients. Our failures were usually due to faulty technique; sometimes to improper or poorly constructed instruments; and sometimes because we elected to do a local anesthetic operation on a general anesthetic patient. One's judgment, like his technique, should improve with experience.

The armamentarium for local anesthesia need consist only of a good selection of needles and a few reliable glass syringes of from one to ten cubic centimeters capacity. We have found the Labat outfit entirely satisfactory, although the needles cannot be used with any other syringe. That is its only inconvenience. For spinal anesthesia we prefer a smaller gauge needle than the ones included in the set. The smaller needles, however, are best used with a short canula guide. Additional and necessary articles are a few good books on the subject. Of these, we believe, one should read Carroll Allen first, for, after reading Labat, one is apt to believe he can induce any type of anesthesia he chooses. Then read Hertzler; read him last, before you try it.

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## TREATMENT OF FECAL FISTULA

RAYMOND H. FOX, M.D.  
ALTUS

It is the concensus of opinion that the pancreatic juice plays the important role in the resistance of the healing of duodenal fistulas, most fecal fistulas of the small intestine, and many of the large intestine, when there is liquid or similar contents on account of an excess of pancreatic juice. By controlling the proteolytic action of trypsin, the very powerful enzyme contained in pancreatic juice, one has the means of stopping the extensive irritation and digestion of the abdominal wall, which is fairly eaten up if it is al-

lowed to continue unchecked for even a short time.

The main action of pancreatic juice is the digestion of protein in an alkaline medium, which is the normal reaction of the contents of the duodenum and small intestine.

It has been shown that by supplying an excessive amount of tenth-normal H.C.L., or diluted acetic acid to the crater of the fistula, the discharge was neutralized or acidified, and the digestive action of trypsin ceased. In case there might still be an excess of pancreatic juice, regardless of the use of the acid, it is suggested that the circumference of the crater be surrounded by gauze soaked in an artificial protein in the form of sterile beef juice, to allow any overflow to digest this before it could attack living tissue of the abdominal wall.

There is an additional factor which must be combatted, and unless one realizes that, the grave toxemia that develops may overwhelm the patient. The active treatment may not cause diminution of the discharges soon enough to prevent death from this overpowering toxicosis. Walters and his co-workers have studied the toxemic incident to duodenal fistula, and have found that the increasing alkalo-sis, characterized by decreasing concentration of blood chlorides and progressive rise of blood urea occurs. They conclude that the toxemia results in its major part from a loss of the action of chlorides of the digestive juices, which are discharged through the fistula, and that this loss turns the tide of neutrality of the blood toward alkalinity; that the excessive discharge from the fistula increases the volume of chlorides discharged and further depletes the body chlorides and increases the alkalo-sis. Any toxic state is accompanied by increased blood urea, the results, in some cases, of the production of nephritis, which prevents the elimination of urea and may infrequently be due to an abnormal amount of urea from the breaking down of body tissue. Toxemia, the result of an obstruction of the biliary, the urinary or the intestinal tract, naturally elevates the blood urea. Hayden and Orr, have proved this to be the case in intestinal obstruction but it is just as evident in duodenal and fecal fistulas. Therefore, the chemical status of the blood in intestinal obstruction and duodenal and high fecal fistulas is practically the same.

In duodenal and intestinal fistula, the

loss of body fluids and starvation are just as important factors as in intestinal obstruction. The treatment of toxemia, therefore, must not be confined solely to the replenishing of the depleted chlorides, but fluids and dextrose must be abundantly furnished as long as the excessive loss, toxemia and starvation continue.

It may be that the balance of production is so disturbed by the continual discharge of the pancreatic juice through the fistula that the pancreas is stimulated to an over production with consequent increased loss of body fluids and extreme depletions of blood chlorides with resulting alkalosis, toxemia and starvation.

It is an established fact that the higher the origin of the intestinal fistulas, the more difficult it is to heal, that the case in which it can be healed and the lessened severity of the toxemia is in direct proportion to its distance from the pylorus. The greater the fluid content of the discharge, the more irritating it is and the more irritated the tissues of the abdominal wall become, the reason for this seems to be the presence of an increased volume of pancreatic juice with its greater quantity of trypsin. It is noticeable how the skin irritation about a fecal fistula decreases on a constipating diet with more concentrated fecal contents. This is not so noticeable in duodenal fistulas, because nothing can be done to solidify the intestinal contents, and the discharge of the pancreatic juice is fairly constant. There is no chance of solidifying or partially solidifying the intestinal contents immediately below the pyloric sphincter.

Further observations have tended to show that bile plays a minor role of digestion of abdominal wall, although there is some digestion of fats. Further, more times have shown that postoperative small intestinal fecal fistulas are notoriously persistent and irritating and most of them do not heal spontaneously.

This method of handling fecal fistulas of the upper intestinal tract will apply to those of large intestines as well, it is my opinion that it is curative in a large majority of cases. It is also most effective in overcoming the chafing of the skin around the anus in acute and chronic diarrhea, especially of infants. Duke has shown that the chafing of skin around the rectum is due to the digestive eroding action of pancreatic juice.

The time required for cure is effected

by: (1) The proximity of the fistula site to the pyloric sphincter, (2) the volume of pancreatic juice in the intestinal contents, (3) the resistance of the patient, (4) infection, (5) intra-intestinal pressure, and (6) the persistence and thoroughness of the treatment.

Intestinal fistulas are less persistent and less resistant to treatment in proportion to their distance from the duodenum because of the dilution of the pancreatic juice with other intestinal secretions, and the products of intestinal digestion lower down. Under normal conditions the fecal content is more solid, the more nearly it approaches the rectum. A diarrhea *per se* or induced by a purgative increases the volume of pancreatic juice and liquification of the fecal contents and consequently the irritation and digestion of abdominal wall.

Therefore it is wise to bring about constipation in the patient by placing him on a boiled milk diet. Boiled milk, in addition to its constipating effect, supplies intra-intestinal protein for the digestive action for the pancreatic juice and so tends to cut down the excess. From four to six ounces of boiled skimmed milk is given every four hours. The oral administration of 1-10 to 1-5 grain of powdered opium every two or three hours, tends to decrease the peristalsis and lower the intestinal pressure. If secondary anemia occurs blood transfusion and iron intravenously are given. Ordinary methods to combat infection are used. The toxemia, starvation and alkalosis are overcome by intravenous administration of hypertonic salt solution and dextrose with indicated amounts of insulin when large amounts of dextrose are used.

The important factor in the treatment however, is the local application of tenth-normal H.C.L. acid and sterile beef juice, the former is used to overcome the alkalinity of the intestinal contents as pancreatic juice becomes inactivated in an acid medium, the latter supplies a foreign protein, with which the pancreatic juice first comes in contact and digest it instead of the abdominal wall.

The beef juice and H. C. L. acid treatment applies more particularly to fistulas of the duodenum and small intestines than those of the large intestines, and when patients have a tendency to have bowel movement which contains a high ratio of pancreatic juice. Fistulas of the large in-

testine in an otherwise normal bowel usually heals spontaneously, persistent fistulas in which irritation or digestion of abdominal wall from pancreatic juice is not the causative factor, will of course, have to be closed by surgery.

TETANUS, ITS FREQUENCY, PREVENTION AND TREATMENT—WITH REPORT OF CASES.

FRANK HARRISON McGREGOR, M.D., M.C.  
MANGUM

The above subject is chosen for this paper because the writer fully believes that the danger from tetanus infection of all accidental wounds is not acutely appreciated by the physicians of this state. This conclusion has been reached by keeping a detailed history of the tetanus cases coming under our observation within the past ten years, and comparing this with the infrequency of tetanus cases occurring in the army hospitals in France during the World War. The contrast is so striking that a delineation of it here is bound to prove interesting to all of those who are sincerely interested in scientific medicine, especially in scientific prevention of disease.

With the above premises laid, we will proceed to review the army and civilian method of preventing this most terrible and terrifying of diseases, one that is 99% preventable.

In the armies of all nations engaged in the late war, it was compulsory for every soldier wounded, even slightly, such as a barbed wire scratch, to receive at least 1500 units of anti-tetanus serum. Of course cases of multiple wounds received as much as three weekly injections of the above amount. In civilian practice we are too prone to pass the minor wound lightly by or else too easily condescend to the whims of the parents who no not know the importance and effectiveness of tetanus prophylaxis. Where is the physician in civilian practice who can count on the fingers of one hand, the needless and pitiful deaths that have occurred from somebody's neglect?

I do not have access to the tetanus statistics of the armies during the World War but my own experience as Chief of the Surgical Service of a large British base hospital convinces me that we, as civilian physicians, have been lax in our duty to

both patient and our own conception of scientific practice. During my army experience I came in contact with thousands of badly wounded patients, mostly gunshot and shell wounds, some of whom had lain on the battlefield for hours without a dressing, and not one single case of tetanus occurred on my service. This phenomenal record, of course, was due to the fact that anti-tetanus serum was given as promptly as possible and repeated at weekly intervals up to three or more doses. Also in delayed operations on old wounds, such as compound fractures, say three to six months following the injury, routinely anti-tetanus serum was given preceding the operation.

Comparing the above war record with our experience of the last ten years in private practice the contrast is simply astounding. Within the latter period we have seen in consultation and treated here in our hospital, fifteen cases of tetanus. Of these, eleven cases treated in the hospital, six have recovered and five died; of the latter five cases, three died within twelve hours after entering the hospital, showing that the disease was far advanced when treatment was begun. In the other two, one was transferred from another hospital after having shown unrecognized symptoms of the disease for seventy-two hours. Both of these latter cases were post-operative for simple appendectomy. In neither case was the stump of the appendix ligated, but inverted directly through the purse string into the lumen of the cecum.

These two cases have convinced us that Warbasse's theory of spore infection from the lumen of the large bowel and not from cat gut, is correct. At least in the surgical department of our hospital we insist that all appendiceal stumps be ligated and cauterized before inversion.

The remaining thirteen cases were all minor wounds, at least two, only grass-burr punctures. In the two grass-burr cases and one nail puncture case, no doctor saw the patient until the disease was well established. In none of the thirteen cases of traumatic wounds was anti-tetanus serum given prophylactically.

The following case reports and summary will, we believe, convey a more clear delineation of the point in view<sup>2</sup>.

*Case No. 1.* A boy sixteen years, of age, who, one week before had stuck a splinter into plantar surface of his foot.

This patient did not report to a doctor and the splinter was not removed until he was brought for treatment of the "lock-jaw." The splinter was removed, the wound cleansed and cauterized with phenol and left widely open. The patient was immediately given 20000 units of anti-tetanus serum intravenously and 20,000 units intraspinally. This was repeated daily until a total of 160000 units were given. Chloral hydrate per rectum and chloroform was resorted to to control spasms. Results—complete recovery.

*Case No. 2.* A boy fourteen years of age had a mesquite thorn removed from his foot seven days before. No anti-tetanus serum given. When seen in consultation, the patient had been having hard convulsions for six hours. His position in bed was that of extreme opisthotonus and he was cynotic. Under chloroform anesthesia (to relax spasms) he received 40000 units anti-tetanus serum divided equally intravenously and intraspinally. Two grams chloral hydrate given per rectum. Results—death from respiratory paralysis (spastic), four hours after first treatment.

*Case No. 3.* A boy ten years of age, who suffered a compound fracture of radius eight days previous to being seen by writer. No anti-tetanus serum was given at the time of reduction and splinting, notwithstanding the boy was thrown from a horse to the unpaved street. The symptoms were not recognized by the family physician until the disease was well advanced, convulsions being practically continuous and death occurred from respiratory paralysis (spastic) before anti-tetanus serum could be administered.

*Case No. 4.* A young married woman was operated on for acute appendicitis in another hospital by a competent surgeon. She had returned to her home on the eighth day following the operation, but was at this time showing symptoms of irritability that was attributed to nervousness or hysteria. On the tenth day following the operation she was brought to our hospital showing marked symptoms of tetanus. The routine treatment was instituted but death brought relief to the patient after twelve hours. This was one of the appendiceal cases mentioned in the premise of this treatise.

*Case No. 5.* A three year old child who gave a history of a grass-burr wound of one week standing before symptoms developed. This patient was seen and treated

by an osteopath on the first days of pronounced symptoms, but tetanus was not diagnosed or suspected. When seen by the writer on the third day of the disease, the child was having continuous convulsions and was cynotic. 20000 units was equally divided between the vein and spinal canal. Chloroform was resorted to for relief of spasms. Death followed two hours later from respiratory paralysis (spastic) and oedema of the lungs.

*Case No. 6.* A four year old boy who suffered a grass-burr wound ten days before symptoms developed. This case was seen in consultation after 20000 units anti-tetanus serum had been given daily for two days previous. This treatment was continued until 120000 units were given. Chloral hydrate per rectum, and magnesium sulphate intravenously was resorted to for spasm control, the child succumbing from pulmonary oedema on the sixth day of the disease.

*Case No. 7.* A man forty years of age who was suffering from bunions on both feet, trimmed his bunions so close with a razor blade as to cause them to bleed, then proceeded to walk barefooted in the morning dew through the park that adjoined his home. Ten days later, low grade symptoms developed. He called a physician who diagnosed the condition as neurasthenia of a cataleptic type. Later, changing the diagnosis to tetanus when the symptoms became more clear. He immediately brought the patient to the hospital where our routine treatment was instituted but the patient succumbed to the convulsions six hours later.

*Case No. 8.* A ten year old boy stuck a nail in his foot eleven days before. Home treatment was applied and no physician was called and of course no anti-tetanus serum given prophylactically. When brought to the hospital his teeth were locked tight and opisthotonus was severe. The wound was incised and cauterized with phenol. 5000 units anti-tetanus serum was infiltrated in the tissues around the wound, 40000 units given intravenously and intraspinally of 20000 each daily till the enormous sum of 240000 units were given. Chloral hydrate per rectum in two gram doses was given whenever necessary and the use of chloroform resorted to for spasm control. On the eighth day following admission the patient developed double lobar pneumonia but eventually re-

covered and left the hospital well, at the end of the third week.

*Case No. 9.* Boy five years of age, stuck a nail in his foot seven days before admission. No doctor was called and no anti-tetanus serum given at the time of the accident. This child was immediately given 20000 units, for three doses twelve hours apart, chloroform was used as indicated for control of convulsions. The child dying during a hard convulsion thirty-six hours after admission.

*Case No. 10.* A young lady eighteen years of age operated on for acute appendicitis six days previous to beginning of tetanus symptoms. This was a clean case, but the stump was inverted without first being ligated and cauterized. This was one of the early cases that came under our observation and we were slow in making a proper diagnosis and the treatment was not so radical as our treatment of later cases have been. Death resulted in thirty-six hours after tetanus treatment was started.

*Case No. 11.* A boy, age 13, suffering from a blank cartridge wound (toy pistol) of index finger left hand. This wound had been inflicted eight days previously and although dressed by a doctor at the time, no serum was given because the parents were not present. The attending physician telling the child to come next day and bring his mother. For some reason they did not return and consequently no anti-tetanus serum was given. When brought to the hospital the child's jaws were set and opisthotonus was marked. Under general anesthesia, the wadding was removed from the wound, the latter cleansed and 5000 units of anti-tetanus serum infiltrated around the wound, 20000 units being given both intravenously and intraspinally daily until the sixth day when 10000 units only were given intravenously making a total of 135000 units received. On the seventh day after admission the patient developed double lobar pneumonia and was severely ill from this for the next seven days when he recovered by crises, leaving the hospital well on the twentieth day following admission. This case was given bromochloral in four c.c. doses every three and four hours. This was augmented at times with an HMC No. 2 to control spasms. No chloroform was needed to control spasms in this case.

*Case No. 12.* Boy eight years of age, stuck thorn in foot eight days before. No

anti-tetanus serum was given. He was brought to the hospital at midnight by the parents who suspected tetanus from his symptoms of stiff jaws and pain in back. This child was given 20000 units of anti-tetanus serum both intravenously and intraspinally daily, also 5000 units around wound at time of incising and cleaning, making a total of 85000 units. Bromochloral per rectum to control spasms. His response to treatment was splendid and recovery complete in ten days with exception of rigidity of lumbar muscles which lasted quite a time.

*Case No. 13.* A boy ten years of age who had almost severed his great toe with a piece of iron. His wound was dressed by a physician but for some reason anti-tetanus serum was not given. He was brought to the hospital on the tenth day following the accident, with developed symptoms of tetanus. Debridement of wound was done, 5000 units of anti-tetanus injected at base of toe, and 20000 units each given intravenously and intraspinally, immediately. Chloral hydrate, two grams per rectum and an occasional HMC No. 2 to control spasms; chloroform was resorted to twice. A total of 165000 units was given and the boy left the hospital on the eighteenth day, recovered.

*Case No. 14.* Boy six years, stuck a splinter in his foot six days previous to developing symptoms. Family did not think it necessary to call a doctor, so no anti-tetanus serum was given. This child was very ill when entering the hospital and although the usual treatment was immediately instituted, the child succumbed within twelve hours to respiratory paralysis (spastic).

*Case No. 15.* A five year old boy who had stuck a splinter beneath his finger ten days before. The finger was treated antiseptically at the time but no anti-tetanus serum given. The patient was brought to the hospital the eleventh day after receiving wound. Anti-tetanus serum, both intravenously and intraspinally began at once. The same routine of treatment as outlined in above cases was adhered to with the addition of small doses of phenol administered subcutaneously. This little patient made a good recovery and left the hospital on the tenth day following the beginning of treatment.

#### SUMMARY

Of the fifteen cases cited above four died practically untreated, viz., cases num-

ber two, three, five, and seven, while one case, number fourteen succumbed within twelve hours after diagnosis was made. If we delete the first four cases as non-treated we have eleven treated cases with five deaths showing a recovery percentage in the treated cases of 54.54%

If we only consider the nine treated cases that were diagnosed immediately when first seen by the physician and serum treatment instituted immediately, we have a death of only three, with a recovery of six or 66.66%. This latter record is of interest only in showing that if the patient is seen and diagnosed early after the first symptoms appear, we have better than a 50-50 chance of curing the patient.

It is also perfectly obvious as has been stated by authoritative observers, that the earlier the disease occurs following the injury, higher will be the percentage of mortality. It also is evident from the above records that it is impossible to estimate just how large the initial doses of serum should be or how often and how many times it should be repeated, but our experiences have lead us to believe that relative large doses given both intravenously and intraspinally repeated every twelve to twenty-four hours furnishes the greatest chance for recovery. It also has been our observation that the administration of the serum into the spinal canal without allowing a compensatory drainage of spinal fluids tends to enhance the effectiveness of the serum. This is believed to be due to the fact, that the increased pressure produces a better diffusion of the serum around the spinal roots where they leave the cord. This latter theory is our own and based solely on our experience with both methods.

#### CONCLUSIONS

1. Anti-tetanus serum administered at the time of the probable infection, if given in sufficient quantity, will absolutely prevent tetanus.

2. More extensive the wounds, more prophylactic serum is required and a higher number of consecutive weekly injections.

3. All delayed operations on old previously infected wounds such as old compound fracture cases should be preceded by a prophylactic dose of anti-tetanus serum.

4. All cases of puncture wounds, however small, and all soil contaminated open wounds should receive at the time of first dressing a prophylactic dose of anti-tetanus serum.

5. County Medical Societies should educate the public as to the dangers and frequency of tetanus infection and the ease and safeness of its prevention.

6. Every physician should always look for tetanus and a site of infection, in nervous patients, as in some cases of tetanus the infecting injury is so trivial that it is only after close questioning of the patient, or if a small child, of its mother will the history of a trivial injury be elicited, but all of this is important to an early diagnosis.

7. When a diagnosis of tetanus is once made heroic treatment, both specific and symptomatic, should be begun at once and pushed vigorously until danger is past.

8. In addition to excising or incision and cauterizing the wound tract, thorough infiltration with anti-tetanus serum, of tissue immediately surrounding the wound, should always be resorted to in order to block the stream of toxins flowing to the central nervous system.

9. Tetanus is far more prevalent in this state than is generally supposed and the statistics of the Oklahoma State Health Department of the past seven years, which are herewith appended should be illuminating to many physicians.

Deaths from tetanus in Oklahoma are as follows:<sup>3</sup>

Year	Number of Deaths
1923	33
1924	35
1925	73
1926	93
1927	85
1928	76
1929	47
Total	447

1. From Warbasse's Surgery.

2. From the records of the Border-McGregor Hospital and Clinic.

3. From the Bureau of Communicable Diseases of the Oklahoma Department of Public Health.

## PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A.M.A.—IN FOUR ARTICLES

### 1. THE EASTERN DISTRICT

MRS. W. WAYNE BABCOCK  
PHILADELPHIA

According to the Constitution of the National Auxiliary the first Vice-President is automatically Chairman of the organization, the three other Vice-Presidents being organizers for their section of the country. Mrs Southgate Leigh of Virginia, therefore holds this Chairmanship, and the Eastern District is her particular responsibility. At her request a series of four articles is being prepared by her committee in order that each district may be cognizant of the progress of its own State's as well as those of the other three sections. The individual state journals have been generous in extreme in the space they have allowed their auxiliaries and this additional courtesy of reporting the auxiliary situation in other states is deeply appreciated, for there is a growing desire to know "what others are doing."

New Hampshire stands alone as the only New England state 100% organized and co-operating with the national organization. Last year the state auxiliary had misgivings as to its necessity and usefulness but an urgent request from the medical society that the women remain organized, dispelled all doubts. During the year following, Mrs. Hubbard, wife of the State President, visited every county which encouraged and stimulated the growth of unit auxiliaries.

The New Jersey Auxiliary made pilgrimages to state institutions, set apart one meeting when the mothers of physicians were entertained, and sponsored various health meetings. The Essex County Auxiliary, assisted by the physicians, succeeded in establishing a course of health talks, in co-operation with the Y. M. C. A., of Newark, emphasizing especially prenatal care and information which would aid the mothers of babies and young children. Last year Mrs. James Hunter, Jr., New Jersey's State President, visited every county as did Mrs. Walter Jackson Freeman in Pennsylvania, during her Presidency. One cannot help drawing the conclusion that personal contacts are necessary for county development and success.

Virginia is active in spots. The doctors encourage the auxiliaries as they believe that through them education with regard to the menace of state medicine can be spread.

Ohio for several years has been sending representatives from a few organized counties to the national meetings but as yet there is no state organization. As our friend and advisor, Dr. Upham, lives in Ohio, it is felt that he will advise the national auxiliary when the auspicious time arrives for the establishment of a State Auxiliary.

The District of Columbia seems so completely diverted with Washington affairs that the auxiliary which so capably cared for the A. M. A. meetings some years back seems to have gone in retirement.

Delaware in a breathless, better-late than-never manner, has completely caught up and is most interested and active and has entered upon serious work by assisting the men of the profession in establishing a medical library in Wilmington. They will co-operate with Philadelphia at the time of A.M.A. and the eastern section will introduce them with pride to the national organization. West Virginia is up and doing and you may expect still better things from that state this year.

Maine, Massachusetts, Rhode Island, Vermont and Maryland have reported the interest of individuals but no organized effort. Querries from different localities in New York as to why there is no auxiliary have been answered with the statement that several years ago the House of Delegates voted unanimously in favor of the auxiliary and authorized its organization. The same year Connecticut voted favorably but no definite steps have been taken.

Pennsylvania has surely discovered the rhythm in which its auxiliary work is best done, for concrete accomplishments have been turned out regularly, year by year. Of the three thousand dollars contributed last year to the Medical Benevolence Fund more than two-thirds was contributed by the Auxiliary. A definite trend toward educational meetings is felt all over the state and socially it is hoped that the carefully formed Philadelphia plans for the next meeting will bring honor and glory to the Keystone State. Not only are the adult members of the auxiliary meeting, but a group of the most charming and

goodlooking daughters of doctors are working together in order that they may know each other and work in unison for the comfort and pleasure of the A.M.A. guests when they come to Philadelphia in May. Verily, who can question the wisdom of the auxiliary, when it brings about so much willing work in behalf of the medical men of the country?

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### SPONTANEOUS SUBARACHNOID HEMORRHAGE

It is the opinion of Joseph McIver and George Wilson, Philadelphia (Journal A. M. A., July 13, 1929), that the acute infections produce meningeal hemorrhages by the occlusion of many small vessels with infectious emboli and in this way weaken the wall of that vessel through a degenerative process, thus leading to a hemorrhage. Since many of these small vessels may become occluded many small hemorrhages may be produced, a sufficient number to render the spinal fluid distinctly bloody. One will readily recall the numerous petechial hemorrhages seen over the body in cases of meningococcic meningitis. These hemorrhages are probably produced by occlusion of the same vessels and wall degeneration from the infectious emboli. The onset in subarachnoid hemorrhage is sudden as a rule. The mentality of the person is disturbed and its irregularity may take the form of somnolence, stupor, delirium or coma. Consciousness may be completely lost and all stimuli may fail to arouse the patient. The neck is invariably stiff, though it does not become so immediately and Kernig's sign is practically always present. The pupils may be small, unequal or dilated. Occasionally one or more of the cranial nerves is involved and there may be partial or complete hemiplegia; the rule, however, is for the face and arm to show more involvement than the leg, because the hemorrhage is more often basilar in origin, and the face and arm centers, being lower down on the cortex, would be first involved by the pressure of a blood clot. The tendon reflexes are quite often absent although they may be decreased, normal or in some cases increased. Babinski's toe sign is often present on the hemiplegic side, if such exists, and occasionally it has been seen on both sides. Headache is a prominent symptom and is usually severe, and vomiting, often present, is sometimes persistent. Pain or pressure is occasionally noted at the site of the hemorrhage. The mental symptoms last from a few days to a few weeks, and the process of returning to normal is gradual. The pulse and respiration may be slow or rapid depending on the amount of intracranial pressure and shock, and a moderate rise of temperature frequently exists. The spinal fluid is bloody and the pressure increased. The eyegrounds often present marked changes in severe cases and the optic nerves show choking, which slowly recedes; in other cases the retinal vessels are markedly sclerosed and often numerous hemorrhages are seen. Glycosuria and hyperglycemia have been found occasionally, but these have disappeared with spinal drainage. Spinal drainage is undoubtedly the most important procedure in relieving the patient of the symptoms that are due directly to meningeal hemorrhage. It should be done daily until the fluid is colorless. A rather pro-

longed rest in bed is essential and treatment of the underlying condition is imperative; this may be syphilis, hypertension, nephritis, intracranial aneurysm or arteriosclerosis. In addition to frequent lumbar punctures for the relief of increased pressure, magnesium sulphate by mouth or bowel, intravenous injections of dextrose and a limitation of fluids will serve to decrease intracranial pressure. A moderate dose of magnesium sulphate may be given daily and 50 cc. of a 50 per cent dextrose solution may be given daily or every other day. Fluids should be limited to 500 or 1,000 cc. daily. If cases of spontaneous subarachnoid hemorrhage are recognized and the proper treatment instituted, a great majority of patients will recover. However, if they are allowed to drift along the increased intracranial pressure will frequently lead to death. If recovery does take place it will often be with permanent disability because of the presence of blood clots in the subarachnoid space. These will result in such complications as epilepsy, perhaps local motor weakness and mental retardation.

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### MALIGNANT DEGENERATION OF BRANCHIAL CLEFT REMNANT

C. A. Roeder, Omaha (Journal A. M. A., July 13, 1929), reports the case of a man, aged 60, who had a tumor about 2 cm. in diameter apparently attached to the anterior and inner border of the midportion of the right sternomastoid muscle. Treatment with roentgen rays apparently brought about a reduction in size. It began to enlarge about one month before his examination. A frozen microscopic section during an exploratory operation demonstrated an epithelial malignant condition, and an immediate removal of the sternomastoid muscle with the spinal accessory nerve and internal jugular vein, together with adjacent fascia and lymphatic nodes, was carried out. The dissection was difficult, owing to the previous effect of the x-rays on the deep structures. The wound failed to heal and an extension of the malignant area was very apparent two months later. The electric cautery and radium were then applied without any apparent effect, and in September a radical removal of all structures on the right side of the neck was proposed after the roentgenograms failed to show any extension into the thorax. Five months following the operation, the patient appeared in good health, no pain was present, and he could move his head freely in all directions. Four and one-half years after the operation, the patient appears in perfect health. Roeder feels that the previous administration of the roentgen rays greatly assisted in obtaining the final excellent results.

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### VITAMIN ADVERTISING AND THE MEAD JOHNSON POLICY

The present spectacle of vitamin and irradiation advertising running riot in newspapers and magazines and via radio emphasizes the importance of the physician as a controlling agent in the use of vitamin products.

Mead Johnson & Company feel that vitamin therapy, like infant feeding should be in the hands of the medical profession, and consequently refrain from exploiting vitamins to the public.

# THE JOURNAL

OF THE

## Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
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DR. P. F. NESBITT.....Associate Editor  
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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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### EDITORIAL

### SOUTHWESTERN OKLAHOMA HOSPITALS

Few physicians who have not had occasion to visit Southwestern Oklahoma are in position to appreciate the very fine work and the great service rendered by the hospitals in the Southwestern part of the State. In all of these hospitals, which are relatively small, the turnover is very heavy and the work is often very burdensome, this due to the fact that long distances intervene between their location. As this issue is devoted almost entirely to the productions of Southwestern physicians, it was deemed that a brief synopsis

of the capacity and organization of its hospitals would be in keeping. They follow:

#### THE FREDERICK CLINIC HOSPITAL, FREDERICK

This hospital was organized in 1922; has a capacity for fifteen beds, is operated by a closed staff and cares for surgical, medical and obstetrical cases. No training school is maintained.

#### THE TISDAL HOSPITAL, ELK CITY

This hospital was organized in 1913 by Doctors C. W. Tedrowe and V. C. Tisdal, but under the management of Dr. V. C. Tisdal since 1916. This hospital was closed during the World War and reopened in 1920. In 1924 a new building was constructed, with fifty-three rooms, equipment being modern throughout. The institution has a modern sterilizing room, two modern operating rooms, X-ray equipment, of a capacity for deep therapy treatment, physio-therapy, and a laboratory in which blood chemistry, bacteriology, tissue work, and similar high grade work is done.

In 1928 a thirty-five bed hospital at Sayre, Oklahoma, was built, operating in conjunction with the Tisdal Hospital, giving the two a bed capacity of seventy-three. This hospital also has X-ray, physio-therapy and laboratory equipment. A training school for nurses was incorporated in 1924.

#### THE STANDIFER HOSPITAL, ELK CITY

The Standifer Hospital was organized in 1914 and has operated continuously since then, except for the years 1916 and 1917. In 1927 a new brick building was erected, consisting of fifty rooms; this equipped with modern X-ray plant, physio-therapy, chemical laboratory, and is modern in every respect. It has no training school and is operated by a closed staff.

#### THE BORDER-MCGREGOR HOSPITAL, MANGUM

This is the oldest hospital in Southwestern Oklahoma; first organized thirty years ago by Dr. Fowler Border and housed in a small frame structure of ten beds. For years this was the only hospital between Oklahoma City and Amarillo, Texas. In 1907 a thirty-two room brick building was built, which served until 1928 when that building was expanded by fifty beds, the total capacity of this building, if circumstances demanded may be increased to one hundred beds. The new building is furnished throughout in the modern trend

of the newer hospital, that is, a steel equipment, harmonizing in color, with an interior decoration scheme. A fine laboratory is maintained for metabolic, pathological, bacteriological, X-ray and chemical work. The building is equipped throughout with electric refrigeration, has its own ice making machine and circulating ice water to drinking fountains throughout. It has electric elevators of the newer type. Two major operating rooms are finished with black and white tile floors and side walls, with an observation gallery enclosed in solid plate glass. The obstetrical department is isolated, has its own diet kitchen and other appurtenances. Attached to this is a most beautiful nursery. The cost of the building was \$150,000.00. A nurses' training school was chartered in 1927, but was not organized until 1919. A separate building is maintained as a nurses' home. For many years admission to the hospital was confined exclusively to surgical cases, but in 1921 it was opened as a general hospital; no mental or contagious cases being admitted. The hospital is operated by a closed staff. This is the only hospital in the State having an airplane ambulance. It is also served by two motor ambulances.

THE S. A. AND A. HOSPITAL AND CLINIC  
FREDERICK

This hospital is owned and operated by Doctors Spurgeon, Allen, and Arrington. It is a two story brick building and has a capacity for fifteen beds. This hospital was organized in 1922.

THE ERICK HOSPITAL, ERICK

The Erick Hospital was organized in 1925 by Dr. G. H. Stagner. It has a capacity of twenty beds and is operated by an open staff. It has a chartered school for training nurses, but this is not in operation at this time. It is a general hospital devoting its activities to the requirements of medical and surgical cases.

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DUODENAL ULCER, TREATMENT,  
AN UNSETTLED PROBLEM

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Out of a mass of verbal comments, an enormous amount of literature and personal observation of many cases of duodenal ulcer, the writer is firmly convinced that the successful treatment of duodenal ulcer positively depends upon an important triad; these are, an intelligent, cooperative patient; an honest, competent internist; with an honest competent surgeon always available. Co-operation upon

the part of the patient over the prolonged course of medical treatment demanded is most difficult to be had, but without such co-operation most of the cases are foredoomed to failure. Assuming however that we have such a patient, the writer fears that possibly, at least in some cases, the medical man may wait too long and place too much reliance upon purely medical treatment, while on the other hand it must be admitted that we still occasionally meet the surgeon too prone to perform either some type of plastic operation or gastroenterostomy.

Crile<sup>1</sup>, after reviewing 2100 cases concludes that the treatment "is not settled," that there is no set rule for treatment, that the cases get better with few exceptions, immediately on medical treatment and that for months they get better after operation. Then they may begin to have recurrences which may persist for ten, fifteen or twenty years. He noted that often operative results are misleading by reason of the fact that the patient usually would get better but that often marginal ulcer or other complications occur. To him, therefore, treatment is still an open matter, though he was inclined to believe surgical treatment offered the best results. All treatments seem to seek control of acidity. That can be accomplished whether medicine or surgery is used. Gastrectomy is usually successful, usually has no recurrence, but the mortality is high; in the hands of the most skilled operators, 3 to 5%. It is said that European surgeons use gastrectomy in preference to other means, as giving the best results as to a cure.

Stewart McGuire<sup>2</sup> states that the first question is to determine whether treatment should be medical or surgical and perhaps it is now generally accepted that a duodenal ulcer, unless marked pyloric obstruction exists or that X-ray shows the ulcer to be of the perforating type, should be treated medically, provided the co-operation of the patient can be secured. So firmly is McGuire convinced of the efficiency of medical treatment in properly selected cases, and in the better results secured in the cases cured medically, compared with those surgically, that when operating on a patient who has both duodenal ulcer and chronic appendicitis, he often removes the appendix, leaving the ulcer to be treated by the internist. But he notes that success in medical treatment depends not only on the nature of the

lesion but on the temperament, intelligence and financial means of the patient, and the peculiar psychology of the patient, who would be perfectly willing to stay in the hospital for operation but not willing to stay the same length of time for a cure of the disease by medical treatment. So he thinks that patients of scant intelligence, those lacking control necessary to cut out the desires of appetite had better be turned over to surgeons to have their ulcers cut out. It is also his observation that hard manual labor, coincident with the necessity for subsisting upon coarse and improperly cooked foods is an insuperable barrier to successful medical treatment, and that therefore medical treatment of duodenal ulcer is poor treatment for poor people.

It seems to be very generally admitted that medical treatment, as a rule, in the absence of positive contraindications should first be instituted and in the event of failure surgery must be considered. The indications for surgical operation are hemorrhage, perforation or persistent recurrence of symptoms after prolonged medical treatment has failed but it must be remembered that medical treatment calls for an unusually high degree of persistent and intellectual control on the part of the patient and utmost co-operation between patient and physician.

(1) Personal statements, Dallas Southern Clinical Society, April, 1930.

(2) Surgical Clinics of North America, August, 1930.

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### THE WICKERSHAM REPORT

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The medical profession, in so far as its vexations are concerned, perhaps may be able to glean more satisfaction from the Wickersham Report than any other party of people. While no two seem to be able to agree upon the goodness, badness or futility of this report, the medical profession at least should feel some satisfaction that a party of learned gentlemen, after 18 months of study and the expenditure of many thousands of dollars has definitely concluded and recommended unanimously, that from the Volstead Law, which is based upon the 18th Amendment, there should be removed certain elements "because of irritation and resentment on the part of the medical profession." The report recommends doing away entirely with the statute fixing the amount of liquor which may be prescribed and

the number of prescriptions which a physician may use; abolition of the requirement demanding that diagnosis be shown on the prescription blank, and finally leaving as much as possible to regulations rather than fixing details by statute. The prescribing of liquor, as we have noted before, is of little interest to Oklahoma physicians for we have no such right, however, it is a cause of gratification to appreciate that finally an official body has taken cognizance of the universal complaint of physicians who are thoroughly exasperated over the silly and time wasting elements entering into the prescribing of liquor. However, if no one seems to agree over this report in entirety, we must look with surprise upon the suggestion that there be left "as much as possible to regulations." The doctor certainly has had too much regulation wherever he comes in contact with the Federal Government. It would seem that regulations on anything affecting the physician are only sources of resentment and irritation, regardless of whatever they may be. The income tax law is one of the glaring examples of a most aggravating source of irritation to the physician.

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### EXTENSION DEPARTMENT OF THE UNIVERSITY OF OKLAHOMA

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A fair number of physicians and dentists, by this time, are familiar with the great and beneficial potentialities of the work of the University of Oklahoma as affecting these professions. The instructors in both medical and dental work are of the highest class and bring to the local physician information, which sought by other means, would prove a very costly burden indeed.

This service to these two professions of Oklahoma is a mere drop in the bucket, however, compared to similar and greater services extended to practically every class of people and every calling in the State. It seems to the writer that this service existing through the authority of a great University is the wisest possible expenditure of the taxpayers' money. It should not be forgotten in this connection that the cost per capita for the service rendered is practically nil. The writer knows of no service rendered by States which is of greater good to such a great number.

## DOCTOR GEORGE N. BILBY, STATE COMMISSIONER OF HEALTH

The Journal takes pleasure in introducing to our members our new State Commissioner of Health, recently appointed by Governor Murray. The salient features of Dr. Bilby's career are as follows:

Born March 6, 1868, Ottumwa, Iowa.

Attended district schools, and also Highland Park at Des Moines.

Graduated in medicine from Louisville School of Medicine, 1894.

Moved to Cushing and then Stroud, Oklahoma in 1899.

Resided at Alva, Oklahoma, ever since.

Served as Constitutional Convention Delegate 6th District.

Appointed County Health Superintendent of Woods County by Governor Williams.

Examiner on Board of Exemption until time he was called into the army.

Served in World War one year and one month. Nine months Transport Surgeon. Remainder of time on Board of Examiners of Board of Embarkation, Hoboken, N. J.

Hasn't served any since that time.

Been practicing medicine since then.

Appointed State Health Commissioner, 1931.

The State Medical Association assures Dr. Bilby of its support in the conduct of his office.

### REGISTRATION UNDER THE HARRISON NARCOTIC ACT

While we are discussing things of irritation to the physician we should not forget the possibilities of serious trouble which can occur to any busy, overworked, but neglectful physician who fails to register on or before July 1st of each year. It is only necessary to note that the Harrison Narcotic Act provides that anyone who violates or fails to comply with its requirements shall be fined not more than two thousand dollars (\$2000.00) or imprisoned for not more than five years, or both, at the discretion of the court. Oklahoma physicians who register under this act should remember to do so before or on July 1st of this year.

## ANNUAL MEETING COMMITTEES

The following committees have been selected for the annual meeting at Oklahoma City, May 11, 12, 13, 1931:

*General Chairman*: Dr. Cyril E. Clymer.

*Vice-Chairman*: Dr. Henry H. Turner.

*Program*: Dr. A. W. White, Chairman, Dr. Ray Balyeat.

*Finance*: Dr. E. S. Lain, Chairman; Dr. L. J. Starry.

*Badges*: Dr. Phil McNeil.

*Entertainment*: Dr. J. M. Alford, Chairman; Dr. Rex Bolend; Dr. Dick Lowry.

*Golf*: Dr. Wendell Long.

*Reserve Officers*: Dr. John A. Roddy, Chairman; Dr. Lea A Riely.

*Fraternal Dinners*: Dr. E. P. Allen; Dr. John Heatley.

*Women's Entertainment*: Ladies' Auxiliary, Mrs. C. M. Pounders, President.

*Hotels*: Dr. John J. Mraz.

*Exhibits*: Dr. Earl McBride.

*Scientific Exhibits*: Dr. Curt von Wedel.

*Meeting Place*: The Shrine Temple.

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### Editorial Notes--Personal and General

CADDO COUNTY MEDICAL SOCIETY elected the following officers, December 10, 1930: Dr. J. H. Cantrell, Carnegie, president; Dr. P. H. Anderson, Anadarko, secretary.

OKLAHOMA COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their January meeting: Dr. J. M. Alford, president; Dr. Hugh Jeter, vice-president; Dr. K. G. Parks, secretary. All of Oklahoma City.

JEFFERSON COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their recent meeting: President, Dr. F. M. Mingus, Ringling; Secretary, Dr. W. C. Burgess, Ringling; Delegate, Dr. L. L. Wade, Ryan.

ST. ANTHONY'S CLINICAL SOCIETY, Oklahoma City, met January 19th and elected the following officers for 1931: President, Dr. W. K. West; Vice-President, Dr. N. P. Eley; Secretary-Treasurer, Dr. K. G. Parks. All of Oklahoma City.

NOBLE COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their meeting in January: Dr. B. A. Owen, Perry, president; Dr. J. W. Francis, Perry, secretary-treasurer; Dr. B. A. Owen, delegate; Dr. T. F. Renfrow, Billings, alternate.

SEMINOLE COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their regular meeting in January: Dr. T. H. Briggs, president, Wewoka; Dr. O. C. Butler, vice-president, Seminole; Dr. H. A. Kiles, secretary-treasurer, Konawa.

MURRAY COUNTY MEDICAL SOCIETY met in regular session in January and elected the following officers for 1931: Dr. O. W. Sprouse, president; Dr. H. C. Bailey, secretary; Dr. P. V. Annadown, delegate; Dr. D. W. Slover, alternate; all of Sulphur.

MCCLAIN COUNTY MEDICAL SOCIETY elected the following officers for 1931 at a recent meeting: Dr. I. N. Kolb, president, Blanchard; Dr. W. C. McCurdy, vice-president, Purcell; Dr. O. O. Dawson, secretary-treasurer, Wayne; Dr. G. S. Barger, delegate, Purcell.

KIOWA COUNTY MEDICAL SOCIETY met January 9th, at Hobart, and elected the following officers for 1931: President, Dr. A. H. Hathaway, Mt. View; Vice-President, Dr. J. L. Adams, Hobart; Secretary-Treasurer, Dr. J. H. Moore, Hobart; Delegate, Dr. J. A. Land, Hobart.

ROGERS COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their January meeting: Dr. A. M. Arnold, Claremore, president; Dr. J. C. Bushyhead, Claremore, vice-president; Dr. W. A. Howard, Chelsea, secretary-treasurer; Dr. W. S. Mason, Claremore, delegate.

DR. L. J. MOORMAN, Oklahoma City, spent sometime recently in Colorado, reading a paper by invitation before the Medical Society at Colorado Springs; he was also on the program of the Arkansas Valley Medical Society. While absent Dr. Moorman looked in on special surgical work of the chest being done at Fitzsimmons Hospital.

ADAIR COUNTY MEDICAL SOCIETY held a meeting January 7th in the office of Dr. E. P. Green and officers for the ensuing year were elected: Dr. I. W. Rogers, Watts, president; Dr. R. M. Church, Stilwell, vice-president; Dr. D. P. Chambers, Stilwell, secretary; Drs. E. P. Green, R. M. Church and R. L. Sellers, censors.

CANADIAN COUNTY MEDICAL SOCIETY met in regular session the first of January and elected the following officers for 1931; Dr. Wm. J. Muzzy, El Reno, president; Dr. H. A. Dever, El Reno, vice-president; Dr. A. L. Johnson, El Reno, secretary-treasurer; Dr. Leroy Goodman, Yukon, delegate to the State meeting.

CRAIG COUNTY MEDICAL SOCIETY held their regular meeting January 13th, and the following officers were elected: Dr. D. B. Stough, president, Vinita; Dr. J. F. Walker, vice-president, Grove; Dr. P. L. Hays, secretary-treasurer, Vinita; Dr. F. M. Adams, delegate, Vinita; Dr. C. S. Neer, alternate, Vinita; Dr. Louis Bagby, censor, Vinita.

THE AMERICAN PROTOLOGIC SOCIETY will hold their annual meeting, June 7, 8, 9, 1931, at the Bellevue-Stratford Hotel in Philadelphia. The special feature of the session will be a series

of lectures on protologic subjects by Mr. J. P. Lockhart Mummery, Chief Surgeon of St. Marks Hospital in London and an Honorary Fellow of the Society.

ALFALFA COUNTY MEDICAL SOCIETY met in joint session with Woods County Medical Society, in Cherokee, November 25, 1930 and elected the following officers for 1931: President, Dr. Z. J. Clark, Cherokee; Vice-President, Dr. J. W. Mercer, Cherokee; Secretary-Treasurer, Dr. L. T. Lancaster, Cherokee; Delegate to State Convention, Dr. Z. J. Clark.

THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER again offers an award of \$300.00 for the best essay based upon original research work on any phase of goiter, this to be presented at their annual meeting to be held in Kansas City, Mo., April 7, 8, 9, 1931. Information may be had by writing Dr. J. R. Yung, Terre Haute, Indiana, before April 1st, 1931.

CARTER COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their January meeting: President, Dr. Robert H. Henry, Ardmore; Vice-President, Dr. David Autry, Marietta; Secretary-Treasurer, Dr. R. C. Sullivan, Ardmore; Delegates, Drs. C. A. Johnson, Wilson; F. A. Harrison, Ardmore; Alternates, Drs. W. R. Mote, Ardmore; G. E. Johnson, Ardmore.

CUSTER COUNTY MEDICAL SOCIETY met December 26th at the State Tuberculosis Sanatorium, Clinton, Oklahoma, and elected the following officers for 1931: Drs. Lealon E. Lamb, Clinton, president; E. M. Loyd, Taloga, vice-president; E. E. Darnell, Clinton, secretary-treasurer; C. H. McBurney, Clinton, delegate; C. J. Alexander, Clinton, alternate; O. H. Parker, Custer, censor; Ellis Lamb, Clinton, Committee on Public Policy.

OTTAWA COUNTY MEDICAL SOCIETY was entertained at Picher, January 13, for their first meeting of the year. Dr. F. V. Meriwether and the U. S. Bureau of Mines Clinics served dinner to the society. Dr. E. A. Aisenstadt read a paper on "Traumatic Surgery," which was discussed by Drs. DeArman, DeArman, Shelton and McNaughton. Mr. John Campbell of the Eagle-Picher Lead and Zinc Company discussed the Medico-Legal Relations of Traumatic Surgery.

OSAGE COUNTY MEDICAL SOCIETY elected the following officers for 1931 at their meeting in January, 1931: Dr. M. Karasek, Shidler, president; Dr. Roscoe Walker, Pawhuska, vice-president; Dr. M. E. Rust, Pawhuska, secretary-treasurer; Dr. C. K. Logan, Hominy and Dr. Divonis Worten, Pawhuska, delegates to State Meeting; Drs. Roscoe Walker and M. Karasek, alternates; Drs. E. N. Lipe, Fairfax; Roscoe Walker, Pawhuska; C. H. Guild, Shidler, and M. Karasek, Pawhuska, censors.

CLEVELAND COUNTY MEDICAL SOCIETY met January 13, and installed the following officers for 1931: Dr. M. M. Wickham, Norman, president; Dr. J. B. Lambert, Lexington, vice-president; Dr. D. G. Willard, Norman, secretary-treasurer; Dr. C. S. Bobo, and Dr. Willard, Nor-

man, delegates to the State Convention; Drs. W. T. Mayfield and T. J. Dodson, Norman, alternates. The election followed a dinner given the society by Dr. D. W. Griffin and members of the Central State Hospital staff.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES held their joint meeting at Okmulgee on January 19, 1931. The following program was given: Mrs. Vivian Munsell, Graduate Nurse, "Hourly Nursing"; Dr. Leonard Williams, Oklahoma City, "Some of the New Methods of Diagnosis in Gynecology"; Dr. Ben Cooley, Norman, "Coronary Thrombosis"; Dr. Henry Turner, Oklahoma City, "Relationship between Neurology and Endocrinology."

OKMULGEE COUNTY elected the following officers for 1931: President, Dr. W. S. Watson, Okmulgee; Vice-President, Dr. T. C. Carliss, Morris; Secretary-Treasurer, Dr. M. B. Glismann, Okmulgee; Censor, Dr. J. P. Nelson, Schulter.

POTAWATOMIE COUNTY MEDICAL SOCIETY entertained about fifty guests from various parts of the State, with a banquet, and a scientific program, in the Aldridge Hotel, Shawnee, January 17. Officers of the society for the year 1931 were elected as follows: President of the society, Dr. John I. Gaston; First Vice-President, Dr. W. M. Gallaher; Second Vice-President, Dr. R. M. C. Hill; Secretary-Treasurer, Dr. F. C. Gallaher.

The scientific paper for the evening was presented by Dr. W. P. Fite, of Muskogee. His subject was "Arthritis," and his survey of the recent studies, his accurate discussion of classification, and his indication of relative values of therapeutic measures was most valuable.

Discussion of the paper was opened by Dr. Kelley West, of Oklahoma City. He presented also a motion picture on the subject, "The Technique of Arthrodesis of the Hip Joint by Surgical Procedure." Dr. L. S. Willour, of McAlester, indicated the importance of treating the sick patient, as well as the arthritis. Dr. Von Wedel, of Oklahoma City, indicated the importance, and some considerations in the differential diagnosis of acute arthritis and acute osteomyelitis. The discussion was continued by Dr. C. A. Thompson, of Muskogee, and closed by the remarks of Dr. Fite.

Other guests present included: Dr. Ferguson, of Oklahoma City, President of the State Society; Dr. Webber, and Dr. Somerville, of Bartlesville, the former, who is the President-Elect of the State Association, gave a brief resume of the present status of State Medicine.

#### OKLAHOMA HOSPITAL AND SANITARIUM

The Hospital in Tulsa, Oklahoma, formerly known as the Oklahoma Hospital and operated for a number of years by Doctor Fred S. Clinton is to be reopened shortly and operated as an exclusive sanitarium for nervous and mental cases. It will be known henceforth as the Oklahoma Hospital and Sanitarium. It will be under the medical direction of Doctor Ned. R. Smith, 703 Medical Arts Building, Tulsa, Oklahoma. Associated with Doctor Smith in the operation will be Mr. and Mrs. T. N. Neese, formerly

of Topeka, Kansas. Mr. and Mrs. Neese have had twenty-five years experience in the management of sanitariums of the very highest character. This will, no doubt, be welcome news to the profession of Oklahoma as it will provide means whereby mental and nervous patients requiring institutional facilities can be cared for within reasonable distances of their homes. Adequate equipment of the very latest type has been installed and special emphasis will be placed upon hydrotherapy and rest cure.

#### OPPOSED TO ALL FORMS OF CONTRACT MEDICINE

The LeFlore County Medical Society, on January 26th, adopted the following resolution:

"It is hereby resolved that the LeFlore County Medical Society go on record as being opposed to all forms of contract medicine not having the sanction of organized medicine as represented by the State and National Medical Societies. This was done in order to combat the insidious outspread of certain organizations which are drafting into membership all classes of people."

#### DALLAS SOUTHERN CLINICAL SOCIETY

The third Annual Spring Clinical Conference of the Dallas Southern Clinical Society will be held in Dallas during the week of March 30th. Invitations to attend are being sent to all orthodox physicians of the Southern States and Mexico. The program for the week is built around the lectures and hospital demonstrations of seventeen guest lecturers, among whom are Dr. Walter C. Alvarez of Rochester, Minnesota, Dr. Louis J. Hirschman of Detroit, Drs. Morris Fishbein, Russell Wilder, C. G. Grullee, L. J. Pollock, A. A. Hayden and W. A. iPusey of Chicago. Drs. Chevalier Jackson and H. K. Pancoast of Philadelphia, Dr. Dean Lewis of Baltimore, Dr. Jeff Miller of New Orleans and others. Ninety-six hours of organized post-graduate work is being offered by local men in addition to the general assemblies and hospital clinics. The Baker Hotel is headquarters for registration and all assemblies.

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#### TUBERCULOSIS

Edited By  
L. J. Moorman, M.D.  
304 Osler Bldg., Oklahoma City

**Pulmonary Asbestosis.** By Willard B. Soper, M.D.,  
American Review of Tuberculosis, Dec. 1930.

The cardinal symptoms of pulmonary asbestosis is dyspnea which is progressive. Chest expansion is reduced; the dyspnea may be accompanied by cyanosis, the complexion of most patients has a slightly leaden hue; cough may be slight, expectoration is moderate.

The physical signs are those of a bilateral pulmonary fibrosis affecting the pulmonic bases.

Features which serve to distinguish asbestosis and pulmonary tuberculosis are the leaden and dusky complexion, extreme dyspnea, wasting or emaciation out of all proportion to physical signs and the dry quality of the adventitious sounds. These with the absence of tubercle bacilli in the sputum and history of prolonged exposure to asbestos dust indicate the probable diagnosis.

The prognosis appears to be grave.

The essential features of the pathological changes, according to the author, are the pleurisy, the marked diffuse fibrosis and contraction of the lungs, and the presence of asbestos fibres and asbestos bodies.

**Phrenicoexaeresis in Pulmonary Tuberculosis.** By Alexander T. Cooper, M.D., American Review of Tuberculosis, December, 1930.

According to the author, operation on the phrenic nerve is considered to be most useful in unilateral tuberculosis in which the lesions are practically limited to the central or lower part of one lung. Following such operation there is lessening of the distressing cough and expectoration. A definite elevation of the diaphragm can be expected in 60% of selected cases. It is also used as a preliminary step to an extrapleural thoracoplasty, to test out and increase the fibrosis in the contralateral lung.

**Thoracoplasty.** E. H. Bruns and Joseph Casper, American Review of Tuberculosis.

According to the author thoracoplasty compresses the diseased lung and obliterates cavities. In so doing it brings about healing in the compressed lung and by the closure and collapse of cavities it rids the patient of toxemia, harassing cough, positive sputum and the danger of hemorrhage and bronchogenic spreads. It also causes healing of lesions in the contralateral lung. Quiescent, sluggish lesions in the good lung are stimulated to renewed healing by an allergic reaction which results from the squeezing up and leeching out into the circulation of tuberculous products from the collapsed lung.

**Hernia of the Mediastinum.** By Charles C. Hablitzton, M.D., American Review of Tuberculosis, December, 1930.

According to the author, hernia of the mediastinum is of greater occurrence than the literature on the subject would lead one to believe.

Clinically the symptoms of some pain may be experienced by the patient; dyspnoea is the most prominent feature, and cardiac palpitation has also been complained of. The physical findings are those of pneumothorax. A hyper-resonant note is found along the sternal border contralateral to the pneumothorax side; amphoric breath sounds are typical.

On fluoroscopic examination the hernia of the mediastinum appears as an evident bulge of light with a curving border, encroaching upon the normal area of the opposite lung. It appears at its greatest during forced expulsion and is either reduced markedly in size or entirely disappears on full inspiration.

The appearance of this condition is a signal to the physiotherapist to reduce the hernia by aspiration of air from the pneumothorax cavity, if symptoms be urgent, or to decrease the amount of size of refills at a lower pressure, and lengthening the interval between them.

**Oleothorax. The Value of Intrapleural Injection of Olive Oil In Certain Phases of Pulmonary Tuberculosis;** By Cesar Sillig and Milton C. Lang; American Review of Tuberculosis, Dec. 1930.

According to the author, the method consists in filling the pleural cavity with an antiseptic or aseptic oil, preferably olive oil.

#### Indications:

1. If during the treatment of artificial pneumothorax the patient develops serious pleurisy, as so often happens, which is not absorbed spontaneously or respond to tapping becomes chronic, and seriously affects the well being of the patient, or it becomes purulent, oleothorax should be considered. It replaces the serous or purulent fluid, prevents the reformation, disinfects the pleural cavity and maintains the pulmonary collapse.

2. The formation of adhesions causing failure of pneumothorax therapy constitutes another indication for the injection of the oil, which separates the pleural surfaces and lessens the danger of adhesions.

3. In certain types of perforation of lung into the pleural cavity the oil can serve to obliterate these perforations.

The author's method of treatment is as follows: When fluid is known to exist in the pleural space its level is ascertained by means of the fluoroscope and a place of puncture is selected. The puncture is made with a needle attached to a 20 c.c. syringe. The usual precautions are taken to be sure that the needle is in the pleural space. Ten c.c. of 5% gomenolated olive oil are injected into the pleural space. The patient is sent to bed and temperature watched. If there is no reaction in 24 to 48 hours then 50 c.c. then 100 c.c. are injected, increasing the amounts until blockage or filling of the pleural cavity is complete.

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### ORTHOPAEDIC SURGERY

Edited by W. K. West, M.D.  
520 Osler Building, Oklahoma City.

**The Treatment of Tuberculosis of the Joints of the Lower Extremities by Operative Fusion,** by Russell A. Hibbs, New York City, N. Y., Journal of Bone and Joint Surgery, Volume 12, No. 4, October, 1930.

The writer advises open operation for ankylosing tuberculosis joints because he has found that no case of tuberculosis of a joint of the lower extremity treated by conservative method has been cured with a resulting normal mobility. While reports have been made as far back as 1887 by Schafer to the effect that conservative treatment has been effective in a certain percentage of cases, the statistics are not accurate for two reasons: First is to the effect that the diagnosis was somewhat questionable. And, second, the period of observation was too short.

Under the conservative treatment at intervals from one to ten years after discharge from a country branch of a New York Orthopedic Hospital, many of these cases began to show unmistakable signs of active disease and often these cases had been apparently showing the best results.

The operation for the production of artificial ankylosis of the joints was done on many of these cases and the actual condition of the joint structure was easily studied. In none of these cases had the cure been effected, nor was the disease considered quiescent, prior to the operation.

An end-result study was made of two hundred and eight patients with hip joint tuberculosis who had resided at the country branch several years, by Smith and Waters and published in the Journal of the American Medical Association, January 21, 1928. Of the total number, all of which had been under observation for at least four years, a large number had died and in a large number the disease was still active, and in a smaller number the disease seemed to be quiescent, but there was no motion or some degree of deformity and only two patients were free from symptoms and had a useful range of motion.

As a result of these findings, the operative fusion operation on the knee joint was first done in January, 1915, and in twelve years to 1926, fusion had been obtained in one hundred and fifty-four knee joints with proved tuberculosis.

In April, 1923, the first operation for hip joint fusion was done, and in the period to December, 1928, one hundred and fifty cases had been operated upon, securing fusion in ninety-two percent or one hundred and thirty-nine cases. In all cases of the ankle joint and the tarsal joints, fusion was obtained. In the cases in which complete bony ankylosis of the joints was obtained there has been no instance or a recurrence of the disease, and the patient's activity has been increased in spite of the stiffness of the joint, giving greater freedom, more confidence, no pain, and less fatigue. This is especially true of children and of the hip, ankle and tarsal cases. In the knee cases, the chief disability is especially in sitting.

An additional note is also made in this article to the effect that patients have been freed from the constant danger of life by extension of the disease from the active focus of the joint.

**Dislocation of the Knee, by Dr. Joseph I. Mitchell, Memphis, Tennessee, Journal of Bone and Joint Surgery, Volume 12, No. 3, July, 1930.**

This report consists of four cases of traumatic dislocation of the knee, and the average age is about thirty-seven, the youngest being thirty-one and the oldest forty-six. Diagnosis of dislocation of the knee is not difficult. However, X-rays are always taken to rule out any fracture complications.

In the four cases, the tibia was dislocated anteriorly in three cases, and posteriorly in one. It is important to closely observe the condition of the blood vessels and nerve trunks, as complications resulting from their injury are not uncommon.

Reductions of traumatic dislocations of the knee are not difficult. Early reduction gives the best chance for the best after-result. After reduction, a gutter splint, or plaster cast with knee slightly flexed, is applied. The fixation should be worn for several weeks, the average being about six weeks. In severe cases, a walking knee brace should be advised. Continuous traction in the treatment of traumatic dislocations of the knee should be avoided, this being a strain on the ligaments that have been severely lacerated. Physiotherapy is beneficial, thereby restoring function of the muscles and ligaments in a methodical manner.

The results in this series of four cases were

good after a sufficient length of time had elapsed for the healing of the ligaments, the ligaments thereby gaining sufficient strength to prevent lateral instability. There is no fear of limitation of flexion or extension.

**The Paralyses of Pott's Disease by Dr. Edward A. Rich, Ticoma, Washington, Journal of Bone and Joint Surgery, Volume 12, No. 1, January, 1930.**

The writer outlines in a general way four types of paralysis resulting from tuberculosis spondylitis. While the occurrence of severe Pott's disease, which results in the deformity commonly known as the humpback, is rapidly disappearing from our clinics because of prophylaxis, we do see severe paralyses resulting from this disease.

In America this decrease has been rather rapid, but in Europe surgeons are still treating many terminal Pott's palsies because of the economic conditions. European surgeons were slow to take an interest in America's stabilizing spine operations which, undoubtedly, have prevented a great many cases of severe deformity, a high percent of which results in paralyses.

The writer outlines the paralyses as follows:

Type one is described as due to edema and is caused by a severe sudden tuberculosis involvement of the spine and completely paralyzes the affected limbs and body. The prognosis in this type is favorable, and, under proper treatment, normal function of the legs will return.

In type two, the spinal cord is interfered with from angulation due to a severe deformity. The prognosis in this type is also favorable. Case Report: Boy, age 13. Under proper treatment on a Bradford frame, an effort was made to hyperextend the spine thirteen months. An operation was then done in which a hemilaminectomy was done with relief of the constriction of the cord. After surgery, recovery was rapid—patient was able to walk in seven months.

Type three, paralysis from abscess pressure. The prognosis in this type is favorable. About two-thirds of the palsies of Pott's disease are caused by this abscess pressure. A case reported in this group, in which there was an abscess with draining sinuses, was treated over a long period of time and placed on a frame after a special apparatus had been incorporated in plaster above and below the kyphosis used to increase hyperextension. After several weeks, improvement of the paralysis was noted, and at the end of the year was pronounced paralysis-free.

Type four he describes as paralysis from pachymeningitis. The prognosis in this type is not favorable. It is a slow progressive palsy in which the thickened membranes may be a primary source of pressure on the cord. Laboratory reported villus pachymeningitis. One case reported showed that in spite of all the conservative treatment later followed by laminectomy, did not respond to treatment and developed tuberculosis meningitis and died.

In conclusion, the writer advises conservative treatment rather than surgical measures in these old neglected types of Pott's disease that have become paralyzed.

## BOOK REVIEWS

**Abdomino-Pelvic Diagnosis in Women.** By Arthur John Walsheid, M.D., Director of Obstetrical and Gynecological Department of Broad Street Hospital; Director of Obstetrical and Gynecological Department of Pan-American Medical Center and Clinics, New York City; Consultant in Gynecology and Obstetrics to Margaret Hague Maternity Hospital, Jersey City, N. J.; Consulting Gynecologist to Bergen County Hospital, Ridgewood, N. J.; Consulting Gynecologist to the F. Reuter Home, North Bergen, N. J. With Three Hundred Ninety-seven Illustrations, One Color Plate. Cloth. 1000 pages. Price \$12.50.

For several years the medical reader had literally a flood of medical books upon gynecology and allied gynecological matters. These, as a rule, followed a rather definite plan and were very much of a sameness in their arrangement and information offered. This volume differs from all these in its intent and arrangement. It is first intended for the post-graduate student and general practitioner, though the under-graduate should find it useful for reference and collateral reading. It is limited strictly to the diagnostic field. It is divided into a general and special section; the first dealing with general causal factors, pathologic process, symptoms and diagnosis; while the latter considers the special organs from the standpoint of diagnosis. A helpful feature is the introductions from time to time, of case histories, which are taken from the writings of eminent diagnosticians of the leading countries. Naturally the illustrations, to a remarkable degree, are those of pathologic processes. These illustrations are all new and of course go far toward aiding the text. We consider this a remarkable edition.

**Modern Surgery.** By J. Chalmers DaCosta, M.D., LL.D., F.A.C.S., Samuel D. Gross, Professor of Surgery Jefferson Medical College, Surgeon to Jefferson Medical College Hospital, Consulting Surgeon to the Philadelphia General Hospital, St. Joseph's Hospital and Misericordia Hospital, Philadelphia. Assisted by Benjamin Lipshutz, M.D., F.A.C.S., Surgeon to the Mt. Sinai Hospital; Associate in Neuro-anatomy, Jefferson Medical College. Tenth Edition, Revised and Reset. 1404 pages with 1050 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$10.00.

Ten editions of this great volume on Surgery testify to its popularity. Professor DaCosta states that he has personally taken the course of revising the different sections instead of having them looked after by friends and associates. The only section standing untouched being that of Doctor Chevalier Jackson, the eminent bronchoscopist. It seems to us that many new illustrations have been added to this work. It is unnecessary to note that the work of Professor DaCosta has for many years been and still stands, preeminent as an authority on surgery. We can hardly conceive of a more complete volume on surgery and we know of none which covers such a wide field.

**Practical Radiation Therapy.** By Ira I. Kaplan, B.S., M.D., Director, Division of Cancer, Depart-

ment of Hospitals, New York City; Attending Radiation Therapist, Bellevue Hospital: with a special chapter on, Applied X-Ray Physics. By Carl B. Braestrup, B.Sc., P.E., Radiation Physicist, Division of Cancer, Department of Hospitals, Physician to Mt. Sinai Hospital, New York City. 354 pages with 227 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$6.00.

The author of this work has under his direction for care and treatment by radiation about 2000 cases annually. So many requests have come to him for advise and instruction upon employment of X-ray and radium, and for another tragic reason, Dr. Kaplan believes that his book describing the use and technic of radium therapy is justifiable. We agree with this. The internist, surgeon and radiotherapist are constantly finding themselves in the best interest of their patients, forced to decide whether radiation in some form, radiation followed by surgery, or a general mixture of the two is best. So any work pointing out the deciding factors should be helpful to physicians. The absolute necessity for the sensible application of radium to some types of pathology is now accepted beyond question as the proper procedure.

**Traumatotherapy.** By John J. Moorhead, B.Sc., M.D., F.A.C.S., Professor of Surgery and Director, Dept. of Traumatic Surgery, New York Post-Graduate Medical School and Hospital; Surgical Director, Reconstruction Hospital Unit; Colonel Medical Officers Reserve Corps, U. S. Army. 574 pages with 625 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$7.00.

Doctor Moorhead, as we remember, was previously the author of a very useful work on "Traumatic Surgery." This work attempts to designate the technic and treatment by reason of its supreme importance in traumatic surgery and to that end it attempts to detail the actual management of all the usual and most of the unusual effects of trauma.

Busy, modern, American life is so highly mechanized, so many thousands of people are employed in or about or are so directly concerned with our machines that annually various types of injuries must be expected. Corporations, employers and insurance carriers appreciate very well the value of proper first aid and a maintained sensible technic that they demand such without question. It is to the end of an orderly technic that the efforts of this book are directed. The illustrations are practically all new and will be of great help to the physician.

### SODOKU TREATMENT IN PARESIS

Alex S. Hershfield, O. A. Kibler and Selma Colby, Chicago, M. T. Koenig, Elgin, Ill.; O. W. Schmid, Kankakee, Ill., and Anny Maree Saunders, Chicago (Journal A.M.A., March 9, 1929), report on seventy-two patients who were inoculated with the rat bite fever organism. These patients were inoculated about the same time with *Spirochaeta morsus-muris*. All of the cases had been classified as paresis with the exception of two or three, which had been diagnosed as taboparesis. All of the patients were inoculated with the blood of an infected guinea-pig. In some pre-

vious inoculations the blood of an infected rat had been used but no reaction was obtained. Two-tenths cubic centimeter of blood drawn directly from the heart of the guinea-pig was injected subcutaneously in the upper and inner aspect of the left thigh. All patients were put to bed and remained there until complete recovery had taken place. Ten patients died during the treatment, two from pneumonia, one from myocarditis, one in an accident, and four from paresis (these patients had been in poor condition before inoculation and did not show any reaction to the infection). Only two deaths could be directly attributed to the rat bite fever infection. After one year of observation the authors noted the following approximate percentage of improvement: Fifty per cent of the patients were more or less physically improved; 20 per cent showed from slight to marked mental improvement; 60 per cent did not show any difference mentally; 10 per cent at first showed improvement mentally and then became worse. It is quite evident that the height of fever did not have any bearing on the degree of improvement. In fact, many patients with a moderate fever curve showed better mental improvement than those with excessive temperatures. The physical improvement occurred at the earliest time and was most pronounced; many patients gained more in weight after the treatment than they had weighed for many years previous. Neurologic improvement could not be definitely demonstrated. Mental improvement occurred later than physical improvement.

#### RIGGS OPTICAL COMPANY ANNOUNCES NEW CHICAGO MANAGEMENT

Mr. Edw. W. Arnold, well known territorial supervisor for Riggs Optical Company has been selected as manager of this company's Chicago city office. Mr. Arnold has had many years' training and experience in the optical field. He is a qualified executive and is conversant with all phases of optical work and service. He has shown unusual ability to serve and please his clientele. His knowledge of the problems which confront the profession and his co-operative spirit will be welcomed indeed by those in the territory served by Riggs.

Mr. J. A. Lynch, who also has a long and creditable record in optical circles has been selected as assistant to Mr. Arnold.

#### LABORATORY-ENDORSED THERAPEUTIC AGENTS

W. H. Manwaring and A. P. Krueger, Stanford University, Calif. (Journal A. M. A., July 13, 1929), assert that three decades of clinical experience with laboratory-endorsed vaccines and antiserums give ample data from which to calculate the probability coefficient for this class of therapeutic agents. Hundreds of theoretically logical, laboratory-endorsed vaccines and antiserums have been tried by clinicians; 95 per cent of them have been thrown into the clinical discard. An impartial mathematician would conclude from this that fundamental immunologic theories and current experimental laboratory methods assay, less than 5 per cent clinically verifiable truth. He would unhesitatingly predict that, of twenty theo-

retically logical, laboratory-endorsed vaccines and antiserums, only one would prove a clinical success. It would be more difficult for a mathematician to make an equally reliable calculation for laboratory-endorsed agents in collateral fields of applied immunology; for example, the current laboratory-endorsed bacteriophage. Previous experience with biologic antisepsics of this class has been too meager for more than an approximate estimate. He would be forced to base his approximation on two or three imperfect parallels, with serum bacteriolysin and leukocytic extracts as the closest historical examples. If forced to make an approximate calculation from available historical data, a statistician would probably take the average of the demonstrated clinical zero for leukocytic extract, the 1 per cent clinical value of serum bacteriolysin and the maximum immunologic efficiency, 5 per cent. This average is 2 per cent. A liberal approximation would be 3 per cent, which is surely a therapeutic gamble, with the odds at least 30 to 1 against clinical success.

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#### A NEW METHOD OF ROENTGEN PELVIMETRY

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Herbert Thomas, New Haven, Conn. (Journal A. M. A., May 4, 1929), reports on a new method of roentgen pelvimetry. In detail, his technic is as follows: (1) Two points on the external body of the patient are identified; viz., the upper and anterior border of the symphysis pubis and the space between the fourth and fifth lumbar vertebrae posteriorly. The latter is marked with a small adhesive tab. An imaginary line between these two points traverses the anteroposterior diameter of the inlet. (2) The patient is placed in a comfortable recumbent position on the x-ray table, with the back supported and the lower 4 or 5 inches (10 or 12 cm.) of the back uncovered. (3) The distance of the adhesive tab above the table is measured with calipers and a plumb line above the symphysis fixes the distance of the symphysis anteriorly. (4) The tube or target is centered in the median line about 5 cm. posterior to the upper border of the symphysis, with the tube about 3 feet (90 cm.) above the sensitive plate. The exposure is made. (5) With the tube and plate still in situ, the patient is removed from the table. The perforated lead plate is placed in the same plane as that occupied by the superior strait. This is accomplished by means of the plumb line and calipers already mentioned. A second (flash) exposure is made on the same plate. (6) The plate is developed and viewed. Diameters in centimeters may be read directly, as each space between dots represents 1 cm. in the plane of the superior strait. The lead is 1 mm. in thickness and mounted on a board that is adjustable on two upright standards. The whole face of the lead plate has been ruled in centimeter squares and each intersection perforated by a small hole. An electrically driven dentist's drill is useful in making these perforations. Thoms feels that the conclusion is therefore justified that if present methods of external pelvimetry are worth anything in diagnosis and prognosis in obstetrics, roentgen pelvimetry is worth infinitely more. Its value in connection with anthropometric studies is obvious. A method in obstetrics to be of value must be rapid, accurate and safe. This method of superior strait pelvimetry has ably fulfilled these requirements.

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### A BRIEF DISCUSSION OF PULMONARY ABSCESS WITH A PLEA FOR EARLY DIAGNOSIS AND PROMPT TREATMENT

LEWIS J. MOORMAN, M.D.

Professor of Clinical Medicine, University  
of Oklahoma  
OKLAHOMA CITY

Until within recent years pulmonary abscess was considered rare, except as a complication of pneumonia. In the light of our present knowledge this condition seldom follows lobar pneumonia and it is relatively infrequent as a sequel of broncho pneumonia, having its highest incidence in the influenzal types. During the last few decades we have been forced to consider operations about the mouth and upper respiratory tract as the most important contributing factor in the development of this pathological condition. Any type of anesthesia which abolishes the cough reflex, predisposes the patient to pulmonary abscess through the aspiration of infectious material from the mouth and upper respiratory tract. No doubt the greater number of pulmonary abscesses following tonsillectomy and other operations about the mouth and nasopharynx are due to aspiration of infectious material, especially when general anesthesia is employed. Pulmonary abscess may also arise through infectious emboli following such operations. With few exceptions the weight of evidence seems to be in favor of the aspiration route.

Less frequent causes are pyemia, often giving rise to multiple abscesses in the lungs; infections in adjacent structures with direct extension. Abscess of the liver, subphrenic abscess, cancer of the esophagus and empyema, may serve as examples. Direct trauma may occasionally cause lung abscess and periods of unconsciousness from any cause may favor aspiration of infectious material. Sinusitis, infected tonsils, pyorrhea and dental caries are to be considered predisposing factors.

The bacteriology has been carefully

studied by Bucher and others. Even when the material for study is collected through the bronchoscope we are left in doubt as to the true causative micro-organism. Several different types of bacteria are found in each case.

Streptococci (*hemoliticus* and *veridans*) are found to predominate in a great majority of the cases. The *micrococcus catarrhali*, the *pneumococcus*, the *influenza bacillus* and the *staphylococcus* are common, also fusiform bacilli and spirochaetes. As may be seen the bacteria are those commonly found in the mouth and this fact naturally causes one to lean toward the aspiration theory.

The pathology in its origin and in its course of development is materially influenced by the anatomic structure of the lung, by the respiratory function and the force of gravity. There is first a circumscribed focus of infection causing necrosis and liquefaction of tissue. Eventually in the course of its development the abscess breaks into a bronchus. The sponge like structure of the lung with its intercommunicating air cells and bronchioles coupled with the influence of the respiratory function plus the driving and disseminating influence of cough, favors rapid extension of the infection. The influence of gravity may also play a part in carrying infection along the descending branches of the bronchi. Thus the infectious process may be widely distributed through bronchogenic propagation with resulting pneumonitis leading in many cases to multiple abscesses.

In the acute stages the air cells and bronchioles are wholly or partially filled with exudate and mucopurulent material. The tissues are still sponge like, fragile and compressible. As chronicity develops the lung asserts its predilection for fibrosis and the pathological process rapidly changes from one of fragile compressibility to one of dense fibrosis. The abscess cavity is surrounded by a fibrous wall which gradually increases in thickness and density. The bronchial tubes through the

influence of deep seated infection lose their elasticity and under the influence of increased intra-bronchial pressure arising through repeated paroxysms of coughing, bronchiectasis develops. The bronchial tree becomes more rigid as its walls are thickened and the whole inflammatory mass becomes more dense and less compressible. The abscess cavity tends to become multilocular which with the associated bronchiectasis renders drainage less satisfactory although the sputum may increase in quantity and become more offensive in character. Under such circumstances the patient's condition becomes increasingly hazardous from week to week and his chances for therapeutic aid are correspondingly reduced.

In the diagnosis of pulmonary abscess, history taking is of great importance. In the majority of cases it will be found that some preceding circumstance furnishes a definite clue. It seems incredible that cough, fever, pain in the chest and finally purulent expectoration developing in the wake of tonsillectomy or the extraction of a tooth should not be interpreted in the light of the predisposing circumstance and lead to a diagnosis of pulmonary abscess. Yet it is surprising how often the wrong diagnosis is made.

The symptoms are fairly constant and their orderly development usually makes the tentative diagnosis relatively easy. In many cases fever, pain in the chest, and a dry cough may precede the sudden expectoration of purulent sputum which is usually foul smelling. In some cases the first indication of localization in the chest is the rupture of the abscess and the expectoration of quantities of pus. Spitting of blood and even profuse pulmonary hemorrhages may occur.

The physical signs are quite variable, however, in spite of the fact we have been taught that they are often conspicuously absent, it is usually possible to discover valuable diagnostic signs through intelligent application of the fundamental methods of examination. Impairment of resonance is perhaps the most constant finding and is demonstrable before and after the abscess establishes communication with a bronchus. After bronchial drainage is established auscultation will usually elicit signs which vary with emptying and filling of the cavity and the extent of inflammatory reaction in the surrounding lung tissue. The X-ray furnishes valuable information and is particularly helpful in

those cases where the physical signs are not present, or being present are difficult to discover.

The prognosis is always rendered more favorable by early diagnosis and early treatment. The cause, the location, and the duration of the abscess all enter into the prognosis. Those located in the upper half of the lung or near the hilum have a better prognosis than those at the base or near the periphery. Those due to foreign body have a fairly good prognosis if the foreign body can be removed. Multilocular and multiple abscess offer an unfavorable prognosis.

Prophylaxis is very important and should receive much more attention in the future than it has in the past. Dental hygiene and proper care of the nasopharynx are of paramount importance. Neglected teeth with dental caries, pyorrhea and apical abscesses constitute dangerous predisposing factors. Cryptic, infected tonsils and sinus infections are of great significance and should receive careful consideration. When possible, operations about the mouth and upper respiratory tract should be done under local anesthesia. This includes tonsillectomy which proves to be such a common cause of pulmonary abscess. When a local anesthetic is out of the question, the patient's posture should be such as to discourage aspiration of material from the field of operation and the surgeon and the anesthetist should employ every possible precaution to prevent such an eventuality. Dentists should be fully apprized of the danger in order that they may properly safeguard their patients. The mere dropping of an inlay may result in its lodgment in the second or third division of the bronchial tree. Operations should never be undertaken during the course of acute respiratory infections, even of the mildest type, and the patient should always be gotten in the best possible physical condition when surgery is contemplated.

The history of the treatment of pulmonary abscess is discouraging and considered in the light of our present knowledge, it seems that the only chance for improvement over our past methods is to insist on early diagnosis and prompt treatment. The latter should take into account all the unfavorable factors discussed under pathology.

Statistics show that about ten per cent of all cases heal spontaneously under or-

dinary routine treatment. Close observation has taught us that this ten per cent comes from those cases where the abscess is favorably located with reference to drainage.

All cases as soon as diagnosed or as soon as abscess is suspected should be kept on absolute rest in bed with postural drainage and general supportive measures. Most of the authorities advise a continuation of this plan of treatment as long as improvement is evident. If improvement does not follow, or if a stationary stage is reached, the case should not be permitted to go longer than six weeks without surgical aid. This may be in the form of artificial pneumothorax or some more radical procedure such as thoracotomy with drainage, phrenicectomy, thoracoplasty, wide cauterization of suppurating lung tissue or some combination of these various methods according to the progress and demands of the case. The above enumeration of therapeutic methods is prophetic of the gravity of this condition once it passes into a state of chronicity. It must then be agreed that anything promising, even a modicum of aid in the early stages, should find ready acceptance.

The recognition of this urgent need has led the writer to advocate the employment of artificial pneumothorax as a part of the initial routine management. If the pathology is kept in mind and due consideration given to the significant factors arising through the anatomy and the function of the respiratory system the indications for pneumothorax are clearly defined.

Pleural adhesions constitute an early part of the pathology and ultimately participate in the unfavorable condition which accompanies the chronic stage. Partial pneumothorax, if instituted before adhesions form, will separate the two pleural surfaces, thus obviating the danger of pleural adhesions and preventing the extension of the inflammatory process to the parietal pleura. Granting that the sponge like structure of the lung invites rapid extension of the infectious condition, and that breathing, coughing and the force of gravity likewise exert an unfavorable influence, one must welcome pneumothorax as the only simple available method which may to some extent counteract these unfavorable conditions. Partial pneumothorax often exhibits a selective action, collapsing the diseased portion of the lung and that part immediately adjacent, leaving the sound portion more or less free to

perform its function. Whether or not this selective action is manifested in pulmonary abscess, if such treatment were employed early while the diseased area is still easily compressible, drainage would be favored by the gentle pressure exerted, the walls of the abscess would be approximated and healing favored, adjacent air cells and bronchioles would be compressed, thereby discouraging extension by contiguity of open intercommunicating air cells. To a certain extent the influence of gravity would be overcome by the compression and the tendency of pneumothorax to control cough would materially lessen the danger of wide bronchogenic dissemination of the infection.

While it is true that certain complications may develop in the course of pneumothorax, they are insignificant as compared to the possible advantages. The latter statement presupposes that pneumothorax should be employed in such cases only by those skilled in its application. Pneumothorax may also be of value in the diagnosis and treatment of chronic cases. If the pleural space is not obliterated and fibrosis has not progressed to such an extent as to render the abscess wall incompressible, collapse may result in a cure. This happy event is seldom to be expected in chronic cases. However, even in the presence of wide spread pleural adhesions if partial collapse can be accomplished, general improvement is almost certain to follow and in many cases cough and expectoration are reduced and needed rest is made possible. Through these benefits the patient acquires increased resistance and is thereby fortified against the dangers of necessary subsequent surgical procedures.

Artificial pneumothorax is often of material benefit in the diagnosis, and localization of pulmonary abscess and the information it supplies with reference to the location and extent of pleural adhesions proves a valuable guide to the surgeon in case surgical measures are contemplated.

The following case reports will serve to illustrate the difference in the results of early and late treatment.

*Case No. 1.* Male, age 36. Admitted to the Farm Sanatorium May 13, 1929. On April 25 his tonsils were removed under ether anesthesia. Two weeks after the operation he developed a high fever and began to cough and expectorate foul smelling purulent sputum. When he entered

the sanatorium approximately three weeks after the operation, he was quite toxic and was raising six to eight ounces of foul sputum daily. Physical examination revealed unmistakable evidence of pulmonary abscess with a cavity in the upper lobe

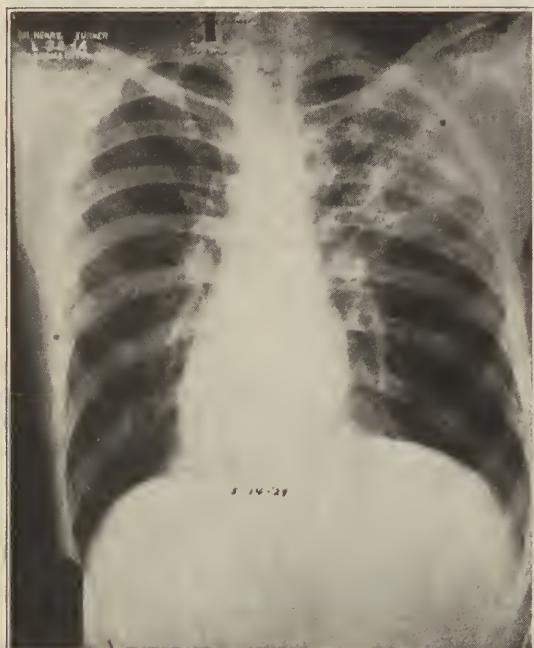


FIGURE NO. 1

The abscess cavity is to be seen occupying the second interspace on the right.

of the right lung. The diagnosis was confirmed by X-ray examination. See Figure No. 1.

Two days after admission pneumothorax was started. Small amounts of air were given at frequent intervals in order that collapse might be accomplished gradually and yet with reasonable promptness. See the first picture in Figure No. 2. Within ten days after pneumothorax was induced all toxic symptoms had practically disappeared and sputum and cough had been reduced fifty per cent. The most striking result of treatment was the early disappearance of the shocking odor which made it almost impossible for anyone to remain in the room. On June 25, less than six weeks after admission, the patient was permitted to return home because he was clinically relieved of all symptoms except an occasional cough with slight mucoid expectoration. He was soon able to resume his work and at the end of five months his collapsed lung was permitted to re-expand. As may be seen by reference to the second X-ray picture in Figure No. 2 there was little remaining evidence of pathology. A recent report shows that the patient is well and at work.

*Case No. 2. Male, age 39. Admitted to the Farm Sanatorium November 7, 1928. He gave a history of an automobile acci-*



FIGURE NO. 2

The same as Fig. 1. The first picture showing the right lung partially collapsed with an adhesion which fortunately did not prevent successful collapse of the abscess cavity. The second picture

shows the right lung re-expanded showing that the cavity has disappeared leaving virtually no marks of pathology.

dent December 17, 1927. He was found unconscious with fracture of the skull and left elbow. About ten days after the accident he began to cough and raise foul smelling sputum. The cough continued with increasing sputum accompanied by occasional attacks of blood spitting. There

was marked emaciation with pronounced secondary anemia. Examination of the chest revealed extensive pathology in the upper half of the left lung with signs of a cavity in the first interspace, see the first picture in Figure No. 3.

Pneumothorax was induced with little

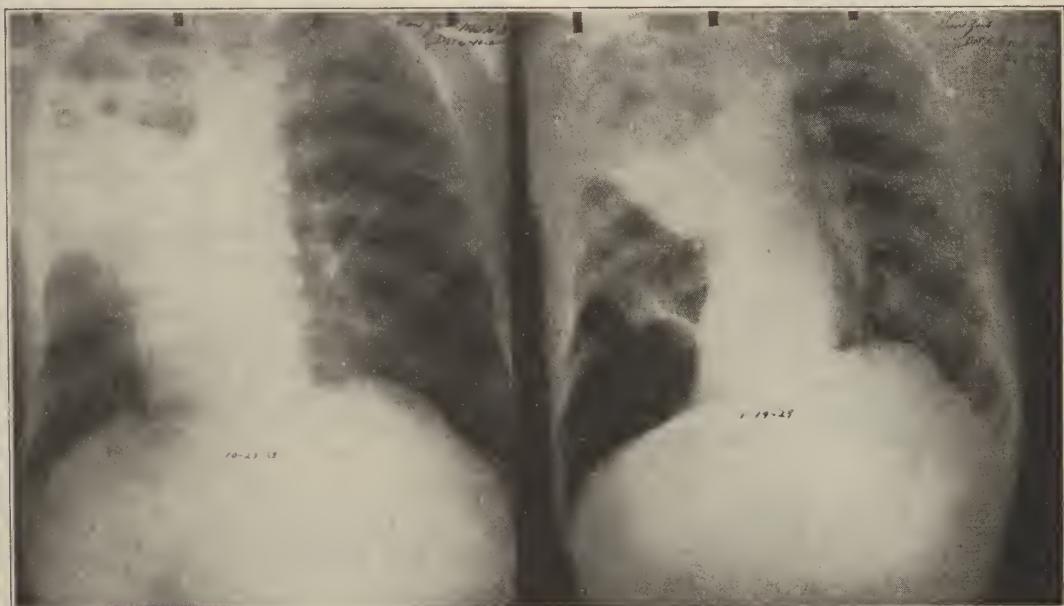


FIGURE NO. 3

The first picture shows the results of pulmonary abscess of one year's standing.

The second picture taken three months later shows a limited pneumothorax area at the base of the left lung.

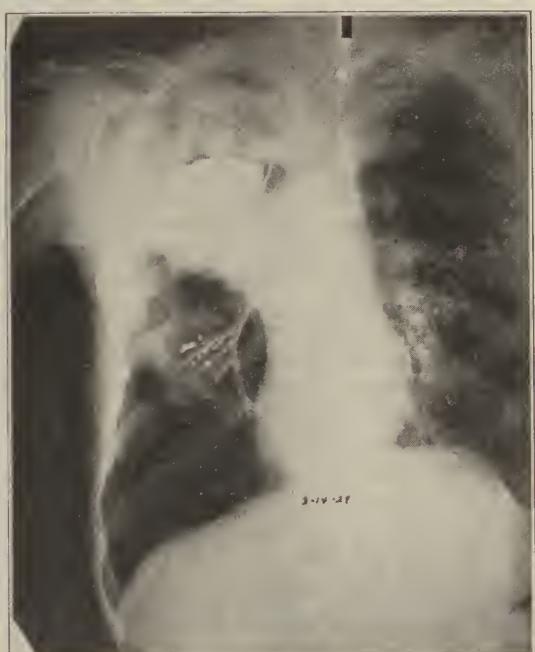


FIGURE NO. 4

Same as Figure 1 after thoracotomy and an attempt to introduce Lipoidal into the abscess cavity.

hope of material benefit because of the long duration of the abscess. However, in a few weeks' time the cough and sputum showed a reduction of fifty per cent and his general condition was greatly improved. Wide spread pleural adhesions (see the second picture in Figure No. 3) prevented collapse of that portion of the lung containing the abscess cavity. Being convinced that there was little hope for continued improvement, surgery was advised. On January 17, 1929, two unsuccessful attempts were made to locate pus with a needle in order that a thoracotomy with drainage might be done. On February 14, pus was located by the introduction of a needle and a drainage tube was introduced. Practically no improvement resulted.

Through continued diagnostic observation and X-raying we were convinced that there were at least two abscess cavities. In spite of the recognized unfavorable prognosis in case of multiple abscesses, we advised thoracoplasty with the hope of bringing about a closure of the abscess cavities. On May 15, five ribs were re-

sected. There was no immediate shock but the patient gradually became more toxic and died June 11.

Autopsy revealed two large abscess cavities in the upper lobe of the left lung with an associated bronchiectasis. There was one bronchiectatic cavity one inch in diameter. The thickness and consistency of the walls of these cavities and the fibrotic changes in the surrounding lung tissue made it appear impossible for thoracoplasty or any other known therapeutic measure to have accomplished satisfactory collapse. There was evidence of a terminal broncho-pneumonia at the base of both lungs.

#### CONCLUSIONS

1. Pulmonary abscess tends rapidly toward a chronic phase which renders successful treatment very difficult.

2. Early diagnosis and early treatment constitute our main hope until we discover more efficient methods of treatment for the chronic cases.

3. Artificial pneumothorax in experienced hands seems to meet many of the indications for treatment and may materially influence the course of the disease if employed before adhesions form and before fibrosis reaches such a stage as to render collapse of the abscess cavities impossible.

4. With the appalling consequences of the chronic stage clearly in mind it seems most urgent that pulmonary abscess should be diagnosed as early as possible and its unfortunate victims placed in a hospital or sanatorium where skilled pneumothorax service may be added to the usual routine management.

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#### IS GASTROENTEROPTOSIS A SURGICAL CONDITION?

F. A. HUDSON, M.D.  
ENID

I think there is no argument about this condition being a common one and a source of much ill health. I know every doctor has a great many ptotics on his hands whom he would like to donate to his most disliked competitor.

The typical thin, neurotic, gassy, constipated, headache, middle-aged female who is a nuisance to herself, her family and her doctor is certainly very common.

However, this is not the only manifestation of ptosis, and in younger people these are not the symptoms of ptosis at all. Young ptotics may not even be thin, although they tend to be. Pain in the right side, usually diagnosed as appendicitis or ovarian disease, is the most common manifestation of ptosis in youth. This may be very acute with a high white count and even in some cases a palpable mass in the right lower quadrant, the mass being an edematous cecum. In these cases the lymph glands along the mesenteric vessels will be found to be enlarged, sometimes to the size of an almond. The symptoms vary, depending, first, upon the degree of ptosis, for a ptosis is only a congenital malformation and comes under the same head as congenital lack of rotation of the gut; secondly, upon the degree of duodenal obstruction caused by pressure on the mesenteric root where it crosses the third part of the duodenum, and also whether this pressure is produced by that part of the mesenteric root which supplies the ileum, or that part which supplies the right colon; third, to the amount of relaxation of the abdominal wall; fourth to the amount of kinking and partial obstruction brought about by the formation of bands, which Coffey states are only an effort of nature to correct the condition; fifth, to the amount and severity of the infection which sooner or later occurs as a result of the stasis; sixth, whether or not the case has a mucous colitis which seems to appear quite commonly in this type of patient, and probably for a good many other reasons, some of which I probably do not yet know. For instance, some of these cases have very violent symptoms as a result of torsion of the mesenteric root which interferes with the circulation of the bowel, due to the twisting and strangulation of the circulation following the rotation of the mass of ileum on itself. I have seen two fatal cases of this kind, on one of which I did an autopsy and found the entire ileum to be gangrenous, and the other one which I operated, and removed sixty-four inches of gangrenous ileum.

The midgut, extending from the papillary portion of the duodenum to the junction of the middle and left third of the colon, or that part of the gut which derives its blood supply from the superior mesenteric artery is the part of the intestinal tract which is subject to distortion of this congenital nature. The intestine which forms in the umbilical sac about the eighth week of

foetal life migrates to the abdominal cavity, the duodenum being first reduced, then the jejunum, and then the ileum. The mass of intestine then rotates around the superior mesenteric artery in such a way that the small intestine passes behind the superior mesenteric artery. The small gut now lies to the left of the right colon with the duodenum behind the artery. The cecum now descends to the right iliac fossa. The duodenum fuses to the posterior wall. The root of the mesentery of the small intestine becomes fixed to the lumbar vertebra and the mesentery of the ascending colon becomes fused with the structures of the abdominal wall, posteriorly. Now, this process which I have outlined very briefly, can become arrested at any stage of its development, sometimes resulting in very puzzling anomalies. The most common condition, however, is an intestine which has gone pretty well through the whole process with the exception of fusion, and the next, of course, would be lack of descent of the cecum, etc.

Some time ago I read a very comprehensive article in some Journal and the author after giving a very good description and its manifestations, stated that these poor unfortunates should not be considered as hopeless because something can be done for them, and he then devoted a considerable number of pages to different diets, exercises, supports etc. Dr. Hertzler describes them as having been born to mourn, and I believe this is the common attitude of the profession towards these cases.

Some years ago I got to wondering if something could not be done for them and became decidedly interested in them. I explored the abdominal cavity of a good many ptotics in the course of other surgery but did not attempt to correct the condition until after I had read the monograph on this subject written by Dr. Coffey. He reported results which encouraged me to attempt to cure some of them. Some time after that I spent some time talking to Dr. Small of Dallas, Texas, who at that time had quite a series of operated cases upon which he reported excellent results, and I obtained quite a good deal of information from him. Dr. Small had at that time devised an intra-abdominal operation for the correction of loose kidney, which I have done many times since. I am quite well aware of the fact that there is a widespread belief among the profession today that nephropexy is not suc-

cessful and should not be done. However, nephroptosis, while it may not produce any symptoms at all referable to the kidney, may produce very violent symptoms and can result in the destruction of the kidney, and frequently is an important etiological factor in infections of the kidney, i. e. pyelitis. The kidney is very seldom down unless the right colon is down; almost never, in fact, and if a colopexy is performed and a small operation done on the kidney, the majority of these kidneys will stay in place. The operation can be done in about three minutes. The kidney itself, is not touched, sutured, or in any way interfered with, and in case the procedure should not be permanently successful, although it usually is, there is certainly no harm done.

Since that time I have operated 428 of these cases. I have taken considerable pains to follow them up, have given them questionnaires and asked them to fill them out and mail them to me at intervals, and I have tried to encourage them to come in to see me occasionally to report. And this spring I have mailed out a questionnaire to every case we have a record of. The chief object of this paper is to report the end results. I have tried to draw some conclusions from the figures as to whether or not a large enough per cent of these cases can be helped to warrant doing this operation. We have had considerable trouble tabulating them and some of the reports are very hard to draw any conclusions from. I have had some very funny reports, a few I did not take any pleasure in reading, and one letter in which I got probably the worst lambasting administered to me since I got too big for my mother to whip. My stenographer in getting out the questionnaire, inadvertently sent a questionnaire to a woman who had died in the hospital. Her daughter filled it out and sent it back and after she had thought about it for a week, and become violently indignant, she wrote me a letter.

The percentages I am giving you are based definitely on the reports as given to me. However, I think the figures should probably be considerably better than given because it would appear that some of the cases who say they are not improved, or only improved, are suffering from some diseases contracted since the operation, while some who say they are not improved at all, are improved. For instance, one old fellow, in filling out his questionnaire, stated that he was not improved at all

and that he was perfectly miserable. About a week later he came in to tell me how miserable he was, and on questioning him I found that his stomach symptoms had left him, his intestinal symptoms had left, and even his constipation had gone and he had gained twenty pounds, but his scar was tender. Consequently, he stated that he was miserable and no better. Another patient, a woman, who stated that she was not improved at all, admitted a gain of 55 pounds, and after writing me about a page and a half of symptoms, ended up by stating that what made her so mad, was that she knew she was a sick woman, but that nobody would believe it. However, these two cases and some others are included in the percentage of those who are not helped, because I am reporting them exactly as stated by the patient himself.

Among the cases who state that they are improved but not cured, we find many who have developed hemorrhoids, salpingitis, diseased gall bladders, diseased ovaries, pelvic disorders, etc., and it is impossible to state whether or not lack of complete cure is due to partial failure of the surgery, or due to some trouble which they have contracted since. However, they are reported here, exactly as stated by themselves. I am going to have to invite them all in to see me as rapidly as I can get to it and examine them, and get accurate figures on the improved and unimproved cases.

The number of cases operated was 428. Of these, 67 per cent were straight ptotics. I am classifying as straight ptotics, those in whom operation for ptosis was the major surgery done. Some of them had some minor procedure, such as the removal of the appendix or the shortening of the round ligaments. Thirty-three per cent had other major surgery, such as hysterectomies, cholecystectomies, gasteroenterostomies, etc. Of all cases reporting, 53 per cent reported themselves as cured without any qualification, 42 per cent reported themselves as improved and 5 per cent reported themselves as not improved. Among the straight ptotics, 61 per cent reported themselves as cured without any qualification, 34 per cent reported themselves as improved and 4 per cent, as not improved at all. Among the straight ptotics under 25 years of age, 65 per cent reported themselves as cured, 31 per cent reported themselves as improved and 4 per cent, as not improved. Of those between the ages of 25 and 35, 60 per cent reported

themselves as cured, 38 per cent as improved and 2 per cent as not improved. Among those over 35 years of age, 60 per cent reported themselves cured, 33 per cent, as improved and 7 per cent, not improved. Among the straight ptotics, 64 per cent report a gain in weight, 29 per cent report that they have neither gained or lost and 7 per cent report a loss in weight. The average gain in all cases was 16 pounds. The highest gain reported among the straight ptotics was 50 pounds, and the lowest 5 pounds. The highest gain reported in the series of cases was 70 pounds, but this woman had considerable other surgery. Among these cases, 9½ per cent reported that they are still constipated. The average time since the operation was three years, plus.

The death rate in all the cases operated was 2½ per cent and the death rate among the straight ptotics was 1.05 per cent. Among the straight ptotics the deaths were all cases of influenza and pneumonia, except one which was due to acute dilatation of the stomach. Among the other cases, we had as causes of death, pneumonia, acute nephritis, acute hepatitis and nephritis, one case of encephalitis following influenza which occurred on the third day following surgery, and one volvulus.

Among those cases who reported themselves as improved or not improved, 69 per cent reported that they had developed some other illness since, among which are pregnancy, heart trouble, hernia, bad teeth, pellagra, menstrual disturbances, gall bladder disease, serious accident, menopause, hemorrhoids, pyelitis, cystitis, rheumatism, salpingitis, diseased tonsils, smallpox, varicose veins, ulcer of the stomach, suppurating ears, goiter, and influenza. We have reports of two cases who died since leaving the hospital, one of influenza and the cause of the other death, unknown.

Since among these cases who report that they are improved and not entirely cured, or unimproved, over 69 per cent also report that they have developed some other disease since leaving the hospital, it is fair to assume that the surgical cure among these cases is probably much higher than reported, and that their present impairment of health is due to some other causes than the original trouble. The percentage of cures is somewhat better among the younger people than among the older ones. The percentage of cure is also somewhat better among those who have liquidated

their indebtedness than among those who have not. In reading these reports, I could not help but come to the conclusion that a good many of the symptoms reported in the unsatisfactory cases are largely neurotic and especially is this true among the older ones. Some cases who have been ill for a long time, develop a kind of invalid habit. This habit in a certain type of female is a very hard thing to cure. It is very similar to the morphine habit. They don't want to be cured.

Some of the cases with improper rotation of the bowel are not entirely curable. Probably none of the cases with a general enteroptosis are entirely curable, but many of them can be helped. If the case has developed a catharsis habit of years standing, the constipation will be very hard to cure, following the surgery and will require possibly months, and a great deal of painstaking effort on the part of the patient. If the case has developed a colitis of severe grade and long standing, prolonged dietary measures and other treatment will be necessary. If the case has a mucous colitis it may persist. Many of the younger ones are cured of their constipation before they are out of bed. In those cases having marked duodenal obstruction due to a drag on that part of the mesenteric root supplying the ileum, a duodeno jejunitomy should be done. There are a few of my cases who are not benefited because they still have too much duodeno-mesenteric ileus. In the cases who are not marked, the laying down of fat in the mesentery will usually cure the condition. The older cases require a good deal of encouragement and supervision for a while until their constipation and colitis begin to improve and until they begin to gain. Some of them, women with large families, and too much work to do, of course are greatly handicapped. A few of the cases with very poor tissue, a delicate peritoneum and badly relaxed abdominal walls, have, I believe, recurred. In some few cases, in which there have been extensive bands and veil formation, I believe the present symptoms may be due to adhesions. I know this to be true of one case which I re-operated.

**DISCUSSION:** *J. N. Jackson, M.D., Kansas City, Mo.*

**Mr. Chairman and Gentlemen:** I have come here to learn and I have learned. As to the effects of operation, I have been one of those who have labored for a good many years under the impression that it

is about the most hopeless thing I had any experience with. Dr. Hudson presents wonderful results and a great number of patients in three years' time. In surgery as in everything else the new succeeds the old. The doctor presents his evidence. I have always thought of it as a condition most discouraging, and the people who are subject to it the class most thoroughly miserable. They might not look so badly as the patient thinks, yet it is one of the most unfortunate things from which the individual can suffer. There has been a great deal of theorizing about this condition. Keith claims to have discovered involvement of the nerve ganglion. Now if this theory of Keith's is correct—if it is due to differences in the muscular coat—I can't see how it is possible to get very great results. It seems to me that suspension operations are the best work. I have done them in years gone by. A number of patients have been operated upon and their appendices taken out. Multiple ineffective operations has been my experience with gastroenteroptosis. I am very glad to have heard this paper and to learn the results produced by Dr. Hudson.

**Dr. O'Neil:** The patients of the type the doctor has been describing come to me with this condition and have so many other things that I don't know where to operate on them. They come to the surgeon. They are sent to us by physicians who have failed to give the required and desired relief, so we have to take them into consideration. I have operated a few of them in a small way. I have even been guilty of taking out chronic appendices, and I wish to call your attention to the fact that it matters not what is the required surgical operation, that if they lie in bed continuously and rest they improve for some weeks and some months, and it eventually dawned upon me it was from lying in bed they got the improvement. I have been trying to get the patients to get hold of themselves at home, sending them back to the physicians because they were sent to the surgeons. There is much these people can do to help control their trouble. Dr. Jackson has touched upon a thing that might need explanation. The nervous system is somehow wronged, due perhaps to fast living and excitement; and rest in bed, proper nourishment, etc., will improve these people. When you get these people to lay on fat they are better off. Then you can get them to put on an abdominal support. Get them in the habit

of living well. Teach them that whatever is physically wrong with their body structure is a violation. You can't operate one thing and cure the whole body. I would like to ask the doctor if he operates on these people, does he follow them up and get them to live right. Does he tell them how to live? Is that how he gets results? At least, that has been my experience innumerable cases.

*Chairman:* Any further discussion?

*Dr. Hudson:* Dr. Jackson misunderstood me. I did not say I had operated that many patients in three years. I said the average time since operation for all these cases was something over three years. The cases reported were operated on over a period of about seven years.

There is nothing new about this. There are other series of cases which have been reported. Gastroenteroptosis, irrespective of what anybody may say about it is a purely congenital defect. Babies are born occasionally with the intestines still in the umbilical sac, and cases are seen in which the development of the intestine has become arrested at almost every stage. I had a case last year in which the transverse colon was under the mesenteric root. She came as an ileus and I operated her as a case of obstruction. I found the cecum in the upper left abdomen, the transverse colon under the mesenteric root, the whole mass of ileum had made a complete turn on itself and had wrapped the jejunum around the mesenteric root. If the embryology is taken into consideration, this case is easy to understand. The nervous symptoms which so many of these cases have are not the cause of the trouble. The nervous symptoms are due to two things, undernourishment and toxemia.

Dr. O'Neil stresses, as do most physicians, the fact that if these people can be put to bed and fattened, that they get better. This is perfectly true. If they are put to bed, encouraged to eat, to rest, and given proper elimination, they feel better. If they can be fattened, they actually get better, and if they can maintain the gain in weight, they will continue to be better. The only trouble with this is that the average individual's condition, that is, finances and home surroundings, are such that he cannot take the prolonged rest. Some of them won't gain weight, even if they do, most of them lose the fat quite promptly after their return to their normal existence. Those who are improved while in bed are simply better because they

are better nourished and the toxemia is lessened. Those who gain weight and are better, are better because of the laying down of fat between the leaves of the mesentery has partially corrected the ptosis, and the nervous symptoms are better, not because the nervous condition is the cause of the disease, but because the malnutrition and toxemia due to the ptosis are relieved. The doctor asked me if I followed up these cases and tried to change their mode of life and habits, etc. I have made an extraordinary effort to follow up these cases and given them instructions about dieting, etc. However, I know, and the doctor knows that advice about changing their habits and their diet, and their surroundings is practically of no good to the average case. The majority of these cases are women who have children, many of them live on farms, and many of them have more to do than they should do. They cannot rest. They cannot get a proper diet. They cannot change their mode of existence. They can only go back to the same living conditions that they had before they came to me, and still, a very good percent of them get well. I would not, certainly, advise anyone to have any surgery who could get a cure without it. But I think you will find that many of them you cannot cure, and many more of them you cannot keep cured, and it is these cases that I have been trying to do something for. Of course, Dr. O'Neil is discussing only the typical middle-aged, ptotic, who is a neurasthenic, underweight, and very much a nuisance to herself and to her doctor. There are many other manifestations of this condition, especially in younger people. About half the cases I see have had their appendices removed and still have the symptoms for which they were operated.

In conclusion, I do not want to be misunderstood. I certainly do not advocate surgery on all of these cases. We have, however, spent a good deal of time and effort trying to follow up these cases and we have reported them as they have reported to us.

*Dr. McClain Rogers, Clinton, Okla.:* I would like to ask Dr. Hudson if the cases whose photographs he has shown us were cases who were operated primarily for ptosis or some other trouble?

*Dr. Hudson:* In answer to Dr. Roger's question. The cases I have shown were cases who were operated primarily for ptosis.

## SOME NEWER METHODS IN PLASTIC SURGERY\*

CURT VON WEDEL, M.D.  
OKLAHOMA CITY

The title of this paper suggests perhaps, basic changes in procedure in the development of plastic surgery as it is performed today in the major clinics of America. There is nothing new in the world, so truly there is nothing new in plastic surgery.

Probably the oldest branch of surgery known was some form of plastic surgery. The ancients many years ago, in the pre-surgical era practiced some type of plastic surgery. In the early days of Indian surgery, one of the outstanding procedures, was an attempt at reconstructing the nose. One of the many forms of punishment in those days was the removal of the nose for political and social crimes. The erring wife had her nose removed. People in those days lived in no gentle time. The Indian surgeons made a fair nose from a flap thrown up from the arm. The thing they did not know, was that it was necessary to line the flap.

Years later, namely in 1597, Gasper Tagliocozzi devised the basis of the modern method in nose reconstruction, the turning of the flap down from the forehead. He likewise however, did not realize the necessity of lining the flap, and consequently the nose shrunk and bunch ed. About this time Posi, in France, brought forth probably what is the basis of our modern aseptic surgery. He spoke of nothing but cleanliness, and had he been followed up and enlarged upon, the Listerine era of antisепtic surgery, might never have been necessary, as asepsis and not antisepsis is the primary requisite.

Another of the modern conceptions is the knowledge that tissue must be taken from the same individual. Tissue from the same family group or unlike hosts will not grow. Probably the three great new principles if any, that modern surgery has brought forth are:

1. The necessity of lining the flap.
2. Absolute asepsis.
3. One must take the tissue from the same individual.

Modern surgery however, has added

many technical details which aid greatly in obtaining the end results which are obtained today. In the first place we never attempt to do any facial work of a major type without photographs before and after; without a mask before and after. A mask of the face is made, and upon this mask our reconstruction work is figured out, either with modeling clay, tissue foil or flexible lead. Namely, we know as nearly as possible, exactly what we are going to do before we do it.

In using the pedicle graft, the principle first brought forth by Blair is strictly adhered to. Seldom if ever, is the pedicle graft transferred from its bed without first returning it to its bed for a few days to ascertain whether the edges will live. Too often a long pedicle flap is thrown from its original bed to its new site and we lose, maybe, only the very edge of the graft, but that will throw us out and make an irregular and scarified edge. An instance of this will be shown later in our pictures.

Another outstanding modification is the cutting of large grafts. Some fifty years ago Wolfe and Kraus evolved a thick graft, containing all the elements of the true skin, which is called the Wolfe-Kraus graft or the full thickness graft. This is the most ideal graft, and in small sizes is successful, but in larger sizes one is apt to lose portions of it. It is a graft which must be handled with great care. It is technically very difficult to keep alive. It requires pressure over a period of three weeks, and constant watching all this time. Some eight years ago, before the Veterans' Bureau at Muskogee, I suggested a graft cut thicker, known as the thick Thiersch. In the interim a great deal of work along this line has been done in two or three of the clinics of America, particularly in Washington University, by Dr. Blair. A method has been devised for cutting very much thicker grafts than heretofore. These are much thicker than the old Thiersch graft, and still thinner than the full thickness graft, and are called split grafts. A graft 6x12 inches can be cut under favorable circumstances, and a graft 4x8 inches can be cut with the greatest ease. These grafts while they show some tendency to contract, do not contract anything like as much as the Thiersch. They can be placed over practically any area, irregular or not, in the soft tissues of the neck, in the axilla, etc., and with properly applied pressure we can be almost certain

\*Read before the section on General Surgery, Annual Meeting, Oklahoma State Medical Association, Shawnee, May 26, 1930.

of a 100% take, provided the surface on which we place the graft is reasonably clean. In the past year (it is to be regretted we have not kept a record of all of them, but it is somewhere around 100), we have had no single instance of complete failure, and the vast majority have shown 100% takes. We have lost in all, less than 10% of the total skin thus transferred, but I am frank to say, that with the greatest care, we have had lots of difficulty with large full thickness grafts, on anything but a very firm surface.

In conclusion, there is nothing new except technique; the principles have been the same through all the ages, but one to get good results, must have:

1. Conception.
2. A knowledge of anatomy.
3. A knowledge of basic principles.
4. Technique.
5. Absolute asepsis.

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#### URTICARIA—DIAGNOSIS AND TREATMENT BASED ON THE STUDY OF ONE HUNDRED AND EIGHTY-EIGHT CASES.

RAY M. BALYEAT, M.A., M.D., F.A.C.P.  
OKLAHOMA CITY

Almost every aspect of the subject of human hypersensitivity offers questions which up to the present have been unanswered, but recent study has given answers to many. That protein sensitization is the causative factor in a very large per cent of urticaria of all types is exceedingly probable and now generally accepted by men working in the field of allergy. It behooves the medical profession to recognize protein sensitization as the cause of urticaria and watch the unfolding of the important role it plays in other diseases. Urticaria is common in childhood and is a constant problem for the pediatrician, but it is a common finding at any age, especially certain types. It may appear as a very fine rash, which is commonly called nettle rash. More frequently it makes its appearance in the skin over various parts of the body in the form of elevated white patches of various size and shape, which appear suddenly, often without accompanying or preceding symptoms of any sort. This type, known as giant urticaria, involves not only the superficial layers of

the skin but also the deeper structures. The third type, angioneurotic edema, is characterized by localized transient swelling of the skin and subcutaneous tissue with a definite tendency to affect the face and the mucous membranes of the larynx and glottis.

#### AGE OF ONSET

Of the 188 cases we have studied, 65, or 34.6 per cent, first manifested symptoms before ten years of age; 28, or 14.9 per cent, first showed symptoms in the second decade; 22, or 11.8 per cent, in the third; 34 or 18.0 per cent, in the fourth; 23, or 12.2 per cent, in the fifth; and the remaining cases between the ages of 50 and 80. We noticed a very definite tendency for the nettle rash type to occur in the first two decades, and but few cases of the angioneurotic edema type to occur during

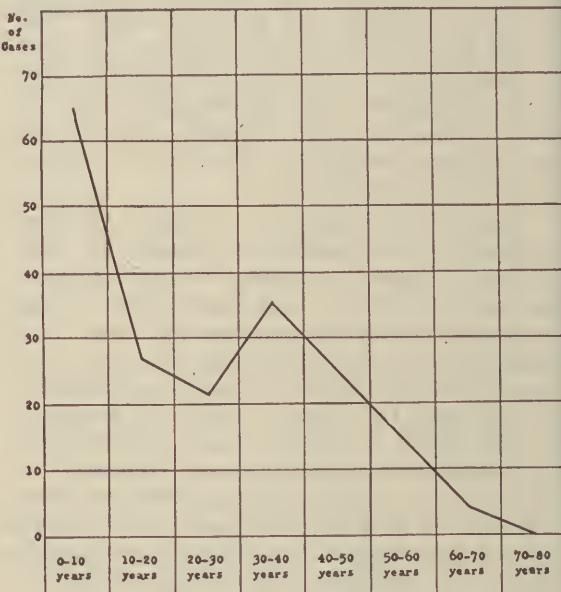


FIGURE 1.

Age of onset of clinical manifestation of urticaria in cases of all ages based on the study of 188 cases.

this period of life. There was evidence from our findings that the giant urticaria type was much more prevalent in the third and fourth decades. A large number of cases who gave a history that their trouble first started when children, had a recurrence in the fourth and fifth decades. Many of these had the nettle rash type in their early life and the giant urticaria or angioneurotic edema type later in life. Some of the cases suffering from the angioneurotic type of urticaria gave a history of the nettle rash type in the teens,

giant urticaria in the twenties or thirties, and the angioneurotic type in the fifties.

#### THE HEREDITARY FACTOR IN URTICARIA

Of the 188 cases of urticaria studied, a positive family history of allergy was elicited in 127, or 67.6 per cent. There were 90 males and 98 females. Apparently the male and female is affected alike. Of our series, 132, or 70.2 suffered from other manifestations of allergy. Like migraine, as heretofore mentioned, individuals born with the ability to become sensitive to food protein and have urticaria, might under adequate contact also become sensitive to inhalants and have asthma or hay fever, or have migraine or eczema from the same food protein causing the urticaria. In a series of a thousand cases of asthma and hay fever studied by the author some years ago a history of allergy in the family was elicited in 60.1 per cent. This would indicate that a history of allergy in urticaria cases is obtained in a greater per cent than in asthma and hay fever. The importance of the hereditary factor in asthma and hay fever is generally accepted. From the data just given we must conclude that the hereditary factor unquestionably plays a most important role in urticaria. The inheritance runs through both male and the female lines and both sexes are about equally affected. From our study, urticaria of all types seems to be inherited as a dominant factor and it follows the law of Mendel just as closely as do the other allergic diseases. It is inter-

from pediculi, bugs, fleas, mosquitoes, and stings from bees, wasps, scorpions, etc.; or physical irritants, may produce typical urticaria. Such manifestations of urticaria would not be a sensitization phenomenon. Vegetable and animal irritants cause reactions which vary greatly, depending on the irritant and the individual. It has been our experience that patients who are specifically sensitive to food or inhalants, and who have asthma, hay fever, migraine or urticaria, usually react much more violently to the above mentioned nonspecific vegetable and animal irritants than do others. This leads the author to believe that those patients who have never shown any allergic manifestation, who react violently to the irritants above mentioned, frequently are specifically sensitive to some foreign protein, but not sufficiently so to produce symptoms of allergic diseases.

In 140, or 74.4 per cent of all cases studied, a definite positive cutaneous reaction to one or more proteins was found. In some cases a marked reaction to inhalants was found but not to food, and many of these cases suffered from no respiratory symptoms. Such a finding, however, was good evidence that they were sensitive to food protein, probably split products, against which we were not able to test. Freeing many of them from their symptoms of urticaria by the use of eliminative diets is further evidence that they were specifically sensitive to food. Urti-

Cases Years	23 0-10	27 10-20	34 20-30	39 30-40	31 40-50	19 50-60	13 60-70	2 70-80	Total in Series of 188 Cases	Per Cent in Series
Male	16	17	16	13	10	9	8	1	90	47.8
Female	7	10	18	26	21	10	5	1	98	52.2
Bilateral										
Family History	3	6	5	6	1	0	0	0	21	11.2
Unilateral										
Family History	15	13	19	20	20	7	10	2	106	56.4
Negative										
Family History	5	8	10	13	10	12	3	0	61	32.4

Occurrence of positive family history of allergy in urticaria, based on the study of 188 cases.

changeable in the linkage with asthma, hay fever, eczema and migraine.

#### EXCITING FACTORS

Our study of the cutaneous food reactions in cases suffering from urticaria, along with the dietary control, has assured us that the exciting factor in a large per cent is specific sensitization to food. By no means is it the only exciting factor. For example, vegetable irritants, such as nettles; animal irritants, such as bites

caria in adult life is often chronic and depressing. Sometimes relief cannot be obtained by regulation of the diet based on the allergic findings, or by eliminative diets, as there are many predisposing factors to contend with, which are not always found, and if found sometimes cannot be overcome. The exact cause of some cases of urticaria is still obscure, but judging from the evidence now at our disposal it is exceedingly probable, as previously mentioned, that urticaria is always due to

anaphylaxis. In some cases the condition may be dependent on a disturbance of the vasomotor mechanisms. Single or repeated use of foreign serum, such as diphtheria antitoxin, or antitetanic serum, may produce urticaria of a mild or marked degree immediately following its use, and is termed anaphylaxis, or urticaria associated with fever may appear from five to ten days following its use, and is spoken of as serum disease. Hives coming on suddenly following the use of antitoxin is usually more severe in patients suffering from asthma or hay fever, and in such cases the hives produced from the serum are frequently associated with an attack of asthma.

In some patients the ingestion of drugs will produce urticaria. They probably do not act directly, but their presence will give rise to conditions favorable to the development of substances which are capable of stirring up trouble in sensitized patients. For example, quinine or aspirin may produce marked urticaria. It is not uncommon in taking a history of an asthmatic child to find that the mother or father is unable to take quinine or aspirin without suffering from hives.

#### PREDISPOSING FACTORS

Like migraine, there are many factors which predispose patients to urticaria. The following are common ones:

1. Physical fatigue.
2. Mental fatigue and depressed states.
3. Thyroid dysfunction, especially hypothyroidism.
4. Toxic states.
5. Sudden change in body surface temperature.
6. Local irritation.

A history of hives appearing after physical exhaustion is very common. Worry, mental strain, excitement or anger will not infrequently precipitate the formation of giant urticaria. This has led many physicians, especially the neuropsychiatrist, to believe that the factors mentioned are the exciting causes. However, they are only agents that give rise to conditions of the body which are favorable to the development of substances which are capable of producing urticaria in the sensitized individual. A low basal metabolic rate should always be thought of in patients suffering from giant urticaria or angio-

neurotic edema. An infected tooth, a chronic gall bladder, or any other chronic infection might be a factor and should be thought of and eliminated if found. A hyposecretion of the thyroid gland will predispose the patient to urticaria in an occasional case. A woman may suffer more severely from urticaria just before or during her menstrual period. An increase in surface body temperature produced by being near an open grate or sleeping with a great deal of cover, or taking a hot bath, may play a part in precipitating urticaria. We have seen one case that sunlight would precipitate urticarial wheals on any portion of the body exposed to it. However, this case was definitely sensitive to food protein. Such a condition is spoken of as urticaria solaris. The local application of cold will produce hives in an occasional case. Irritation of the skin locally is a common factor in the precipitation of the urticarial wheal. There are certain people whose skin is very sensitive to local irritation. For example, stroking the skin with the blunt end of a pencil would cause a white welt in line of stroke, which finally becomes red. The elevated area will remain for several minutes. This is spoken of as dermatographia. There is no sensation of itching, which is common in both superficial types of urticaria. It is frequently considered a sign of neurosis, and our newspapers have occasionally reported that it occurs commonly in the insane. Neither of these two suppositions is correct. The condition has been termed by some "urticaria dermatographia." The term is not a good one inasmuch as the exciting factor in the production of dermatographia is in all probability not a sensitization to foreign protein.

It is interesting to note how many of the above factors are also predisposing ones in migraine. The factors we have just mentioned should be considered not as causative agents but conditions that change the system so that the exciting factor will precipitate the formation of local edema of the skin or mucous membrane.

#### SYMPTOMATOLOGY

Urticaria sometimes appears as a very fine rash, simulating measles. The skin of the face may be involved but the eruption more commonly makes its appearance on the trunk and limbs. The superficial layers of the skin only are involved. Preceding the eruption there may be a burning or tingling sensation. In this type of urticaria there is usually marked itching. The

attack may last a few minutes or a few hours, or several days. The itching sensation is intensified if the patient sits near the grate or is warmly blanketed. The attack may disappear only to reappear again in a few days or a few months. The patient may associate the onset of symptoms with the ingestion of certain articles of food, particularly shell fish, nuts, chocolate, or celery, but when the offending food is a common one it usually cannot be named by the patient. The rash may appear pinhead in type, or in the form of rounded or irregular patches. The individual wheals are sometimes white but may be pinkish in color. They may be soft or firm to touch. In some cases the wheals may be reddish and are followed by pigmentation. The lower part of the trunk and the thighs are common sites for the giant type of urticaria. The urticarial wheal may disappear in a few minutes to a few hours and reappear on the same area the next day or reappear in an entirely different location. Giant urticaria involves not only the superficial layers of the skin but the deeper structures. Like the nettle rash type, there is marked itching and burning. Sometimes there is coalescing of the urticarial wheals, so that an area covering several centimeters appears to be one large hive. Usually when the hive disappears there is no trace of it. As previously mentioned, occasionally there is left pigmentation which will last from a few hours to a few days.

Most cases of urticaria suffer for a few hours to a few days then there will be a period of freedom, but some are never free. That is, sometime during every day there will appear from one to many urticarial wheals. We have one patient, for example, who reports that she has never been free a single day, of a certain number of urticarial wheals, since she was five years of age. She is now forty. Wheat proved to be the cause of her trouble. In all probability during the past thirty-five years wheat products have been ingested daily.

There is a third class of urticaria, spoken of as angioneurotic edema, which is characterized by localized transient swelling of the skin and also subcutaneous tissue, but the swelling chiefly involves the subcutaneous tissue or submucous membranes. The submucous membranes of the mouth and throat are the ones most commonly attacked, but the gastro-intestinal tract may be involved. The edema may affect any portion of the subcutaneous

tissue, but the swelling is more frequently found about the face. Angioneurotic edema is not often common in hospital patients, for which reason if hospital records are examined the percentage of patients suffering from angioneurotic edema would be small, but mild to moderately severe types are seen quite frequently by the practicing physician, and the pronounced and persistent cases are not uncommonly seen by the specialist. The disease affects the male and the female about equally. It is uncommon under twenty years of age. The name would suggest that it occurs in the highly nervous and neurotic type of individual, but our experience leads us to believe that this is not true. The sufferer may waken after a sound restful sleep to find one eye greatly swollen or the upper lip on one side tense and when she looks at herself in a glass she finds it white and swollen. By afternoon the swelling may disappear and the face be restored to normal. The swelling may return in the same location from time to time or on its return other portions of the body may be involved. There is usually no disturbance in general health. Some cases are quite serious, especially those in which the mucous membrane of the throat is involved. We have a number of cases who at times are unable to walk on account of the swelling of the subcutaneous tissue of the soles of the feet. A mild degree of hypothyroidism in angioneurotic edema is not uncommon. It is the author's opinion that the exciting factor is usually a protein sensitization, although the specific food protein cannot be found in many. Itching in this type of urticaria is practically *nil*, but it should be that way since the superficial layer of the skin in which the sensory nerve supply is located is not involved.

It is not at all uncommon to find the nettle rash type and giant urticaria appearing at the same time in the same patient. Giant urticaria is frequently associated with angioneurotic edema in the same patient. In other words, it appears that nettle rash, giant urticaria, and angioneurotic edema, are all one and the same, appearing only in a little different form and involving different structures. The hereditary factor plays an important role in all types. As previously mentioned, the exciting factor in all types is probably a common one, namely, anaphylaxis.

#### CASE REPORTS

The following case reports, briefly re-

viewed, will illustrate the various types of urticaria:

**Case 1.** Miss M. Mc., a university student, age 19, had suffered from the nettle rash type of urticaria for three months. During the past four years she had suffered from seasonal hay fever. The nettle rash was not constant but it appeared every three or four days and would last from twenty-four to thirty-six hours. The urticaria first appeared following the loss of her father. It involved the trunk and limbs and she suffered severely from the sensation of itching and burning. Her symptoms were so severe that it was interfering with her university work. Her mother was a sufferer of perennial hay fever and her maternal grandfather had asthma.

Cutaneous tests revealed the following:

Giant ragweed .....	+++
Short ragweed .....	++++
Western ragweed .....	++
Duck feathers .....	+++
Goose feathers .....	+++
Chicken feathers .....	+++
Wheat .....	++++
Radishes .....	++
Turnips .....	+
Egg white .....	+

When the foods to which she was sensitive were removed from her diet her symptoms of nettle rash disappeared, only to reappear when wheat or any food preparations containing wheat were ingested.

**Discussion:** It is interesting to note that this young lady has an ancestral history of allergic diseases. Such a history is usually elicited if patients are carefully questioned. One naturally would be interested in knowing when this patient became sensitive to wheat. In all probability she was sensitive to wheat before her father's death, but it took the nervousness produced by the father's death, acting as a predisposing factor, to so change the body functions as to allow the exciting factor, wheat, to precipitate the nettle rash form of urticaria.

**Case 2.** Baby B., age 20 months, developed a pin point rash covering the trunk and limbs when eggs were added to the diet at 16 months of age. The rash disappeared the following day, only to reappear a few days later. The mother noticed that constipation would have a tendency to produce the rash and that on some days anger or protracted crying would apparently cause the rash to appear.

On close questioning we found that the

mother had had eczema as a child, and that the maternal grandmother suffered from phthisic (asthma).

Since the rash was so persistent in its reappearing, and the family physician was not able to correct it by manipulating the diet, he referred the case to us for study from the standpoint of allergy. The following were our findings on skin tests:

Egg whole .....	+++
Egg white .....	++++
Egg yolk .....	o
Wheat .....	o

When egg white was removed from the diet the child became free from urticaria, and has remained free for the past year.

**Discussion:** From the history one might feel that a nerve element, or constipation, was the exciting factor, but after eggs were removed from the diet the child could cry and could become constipated without the production of hives. In other words, these factors were predisposing ones and not the exciting. It is interesting to note that this child could take egg yolk and not have hives. Usually a child who is sensitive to egg white will be sensitive to egg yolk but occasionally one becomes very sensitive to the white of eggs and not sensitive to egg yolk.

**Case 3.** Miss N. W., teacher, age 42, had suffered from what she called bold hives for many years. Sometimes her attacks would be so severe that they would interfere with her teaching, then she would go for a number of weeks perfectly free. At times there would be only a few welts, while occasionally the body would be almost covered.

Her great grandfather had had asthma, her mother had occasional attacks of hives, and one brother has hay fever.

A physical examination revealed a normal woman in every respect. She said that except for her hives she always felt well and had a great deal of energy.

The following findings were obtained on food testing:

Eggs .....	o
Wheat .....	o
Cheese .....	++++
Milk .....	+++
Casein .....	++
Blackeyed peas .....	+++
Lettuce .....	++
Celery .....	++++
Cantaloupe .....	++
Watermelon .....	++

The foods to which she was specifically sensitive were removed from her diet with

partial relief from symptoms. She was retested on a subsequent visit and was found sensitive, in addition to the previous positive findings, to the following food proteins:

Oatmeal .....	++
Buckwheat .....	+++

On careful questioning we found that it was not uncommon for her to have oatmeal for breakfast and during the winter she frequently ate buckwheat cakes. When these foods were eliminated from the diet, in addition to the previous ones, she remained symptom free.

**Discussion:** This patient illustrates the importance of testing and retesting. Long ago we learned in asthma and hay fever the importance of retesting. It seems that under certain physical conditions patients may be negative on one testing and strongly positive on subsequent testing. In other words, every positive factor may not show on the first testing. If a definite positive reaction is obtained it is a very important finding, but a negative reaction to food protein does not always mean that the patient is not sensitive to that particular food protein.

**Case 4.** Mrs. W. J., age 43, has suffered very severely from giant urticaria for the past three years. During her infancy she had eczema and during her teens she occasionally had a nettle rash type of urticaria. A few months previous to the onset of her symptoms she had had rather extensive operative procedures which upset the glandular system of the body.

There was no history of allergy in the family.

Skin testing revealed the following:

Squash .....	++
Pumpkin .....	++
Oysters .....	+++
Scallop .....	++++
Wheat .....	+++
Cabbage .....	++
Rhubarb .....	+++

The foods to which we found her specifically sensitive were removed from her diet without freeing her from symptoms. A basal metabolism showed a lack of secretion of the thyroid gland. A careful use of thyroid extract along with her dietary measures has given her relief from urticaria.

**Discussion:** This patient illustrates the type that is occasionally seen in which operative procedures have upset the glandular system of the body, which in turn acts

as a predisposing factor so that the exciting factor, namely, a specific sensitization to food, produces urticaria. These cases often require glandular therapy in addition to removing the specific foods, for complete relief.

**Case 5.** Mr. C. M. M., age 31, came complaining of periodic attacks of swelling of the eyes, ears, hands, or, as he said, most any part of the body. The swelling would remain for a few hours and disappear, only to reappear. Sometimes the swelling of the hand would be so great that it would interfere with his picking up legal papers in the court room, and therefore would be a source of great embarrassment. On one occasion he came to the Clinic following a ride in a car, at which time he had a marked swelling over the lower back, appearing as if a great roll of fatty tissue had developed suddenly underneath the skin. On another occasion he came with his arm in a sling, as the subcutaneous tissue of the arm and hand had swollen to that extent. There was no pain and no sensation of itching. In twenty-four hours his arm and hand were perfectly normal.

Careful testing and retesting in this patient gave negative findings. Dietary manipulation, however, based on our experience with other cases of urticaria, freed this man from his uncomfortable and embarrassing symptoms.

**Discussion:** This case is typical of the angioneurotic type of urticaria. Of the three types of urticaria the offending food is much more difficult to find in this type. In about 50 per cent of the cases it can be determined by cutaneous testing. Dietary manipulation must be used in the treatment of those cases in which protein tests are all negative.

**Case 6.** Lieut. R. F. M., age 28, was sent to our Clinic by military authorities, with a history that he had been off active duty for three years on account of marked swelling of the feet, hands and face, which would appear periodically but which reappeared so frequently that it interfered with his being on active duty. The swelling of the feet would be so severe that the blood supply of the skin over the sole of the feet would be destroyed to the extent that it would all peel off following the subsidence of the swelling. This would make his feet so tender that he would be unable to walk for a number of days. Sometimes, as he said, he would go four or five months without his feet being in

volved, but his lips, ears and eyes would remain badly swollen a good deal of the time.

He had had hives, nettle rash in type, as a child. His mother had asthma. No other history of allergy in the family.

He had had repeated examinations in a number of the military hospitals with a report that he was absolutely normal from every standpoint except hives.

Protein tests gave the following results:

Milk .....	++
Cauliflower .....	++
Pork .....	+++
Whole egg .....	+++
Egg white .....	++
Egg yolk .....	++
Cantaloupe .....	+++
Codfish .....	++
Shrimp .....	+++
Halibut .....	++
Lima bean .....	++
Peaches .....	++
Cottonseed .....	+++

Physical examination revealed a normal man in every respect except for hives.

This patient was given no medicine but all of the foods to which he was specifically sensitive were removed from the diet, with partial freedom from symptoms. Re-checking was done, with findings similar to the first. Three other foods, namely, nuts of all kinds, all of the shell sea foods, even those to which he was not sensitive, and cheese, were removed from his diet. These foods were taken out on general principles, as we have learned that they are common offenders. For the last few months he has remained entirely free from his trouble. His diet is somewhat limited, but he has been advised to see that during each twenty-four hours he has two vegetables, two fruits, two cereals, and two meats. This makes a well rounded diet.

*Discussion:* This patient illustrates the severe type of angioneurotic edema we occasionally see, sufficiently severe to interfere seriously with one's work. It also brings to our attention the fact that all the offending foods cannot always be found by testing and that dietary manipulation based on our knowledge of causative factors in other cases must be used.

*Case 7.* N. S., a man, age 42, an oil field truck driver, came to us with a history that for a number of months he had never been free from hives on some part of the body and on several occasions he thought he was dying, on account of a swelling in his throat. At one time he was stung by a

wasp, following which he developed a very severe urticaria and the physician thought he was dying, on account of his difficulty with swallowing, and labored breathing. This man was found extremely sensitive to a large number of foods. Removing them from his diet has given him practical freedom from his urticaria, sufficiently so that it does not interfere with his work. He is advised to carry with him daily a bottle of epinephrine (adrenalin), and has been told if he has any swelling in his throat, interfering with breathing, to gargle his throat with epinephrine, and if he is near a physician or can reach one, to have given him 15 minims hypodermically and repeat.

*Discussion:* There have been a number of cases on record in which patients died of difficulty in breathing following scorpion, wasp or spider bites. It is the author's opinion that practically all of these cases are allergic in type. The drug par excellence in relieving the patient from swelling of the glottis and larynx is epinephrine.

#### DIAGNOSIS

The nettle rash type of urticaria is sometimes mistaken for measles. Nettle rash always itches and burns and is seldom accompanied with fever, which is a differentiating point. Patients are frequently seen during their first attack of nettle rash type of urticaria, but usually there is a history of previous ones. Giant urticaria is scarcely ever mistaken for any other condition. Localized edema due to chronic infections, or local interference with venous blood return, may produce swelling that might be mistaken for angioneurotic edema. In the two conditions mentioned, however, the edema would be in all probability continuous over a period of several days at least, which is not true of angioneurotic edema.

#### METHOD OF DETERMINING THE EXCITING FACTORS

The exciting factor in a large per cent of the cases of urticaria of all three types is usually a sensitization to foreign food protein. In practically all cases of the nettle rash type the offending food protein can be found on careful testing and retesting. In the giant type of urticaria the exciting factors can be found in approximately 70 per cent. In the angioneurotic edema type the exciting food factor can be found in about 40 per cent of the cases.

Like migraine, multiple sensitivity is the rule. In testing cases of urticaria one finds

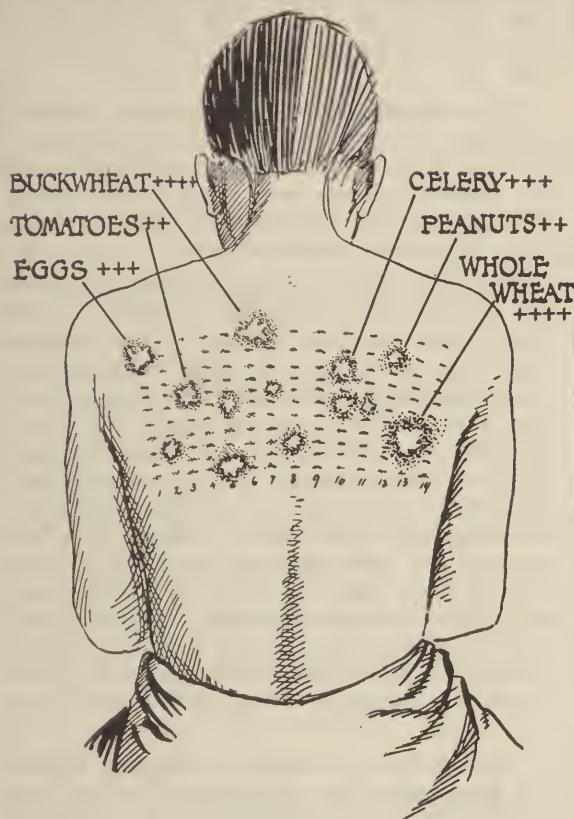


FIGURE 2.

An excellent area of the body for applying food protein tests.

more difficulty in making correct readings than in cases of migraine, since the trauma from the testing knife or the toothpick will frequently produce an urticarial wheal. This is a false reaction and must be differentiated from an urticarial wheal with erythema produced by the irritation from food protein.

#### PROGNOSIS

The nettle rash type of urticaria is usually of short duration, or in other words, more or less acute. The giant urticaria is frequently acute but many times persists for months or years. Death from either of these two types might occur due to a swelling of the larynx or glottis, but this is very unusual. It is not uncommon for those who suffer from the third type, angioneurotic edema, to lose their lives due to a sudden swelling of the mucous membranes of the larynx or glottis. Any case of urticaria, especially the angioneurotic edema type, should be careful about being stung by bees, wasps, spiders, tarantulas, scorpions, etc. Cases who are bitten should

seek the services of a physician immediately. If the physician should not suggest the use of epinephrine, it should be suggested to him.

#### TREATMENT

The first step in the treatment of urticaria of any type, of course, is to determine the exciting factors and carefully eliminate them. The next step is to teach the patient concerning the predisposing factors and try to eliminate them the best possible way. In many cases it is difficult to determine all of the exciting factors and it is not easy to eliminate all of the predisposing ones. Successful treatment of urticaria depends largely upon experience, as dietary manipulation is not easy. One should always keep in mind, when the diet of a patient is limited or restricted in any way, the fact that the body needs various types of food. A good rule to use is as follows: In the diet each day two vegetables, two fruits, two cereals, either cooked or raw, and two meats, should be had. Under meats are included eggs and fish.

Occasionally a patient can tell his physician the food that is causing the urticaria, but this is very unusual. So frequently it is not one food but a combination of many foods, and usually some of the more common ones. Sometimes urticaria will appear shortly after the food is ingested. In such cases washing out the stomach with a stomach pump would be beneficial, but in many cases the urticaria will appear several hours after the ingestion of the food, therefore the use of the stomach pump would not be of service. Epinephrine in 10 minim doses, and repeated if necessary in thirty minutes, is good treatment. In removing foods from the diet, to which patients are specifically sensitive, it is extremely important to remember that it takes only a very small amount of the food in some cases to produce symptoms. For example, one of our asthmatic patients, a small boy, had had a history of eczema very severely in his early life. Eggs were removed from his diet with entire freedom from his skin lesion. The mother realized the importance of eggs. At one time she wrote us saying that her child was having hives. We wrote her that in all probability he was obtaining eggs from some source. She insisted that he was not, but was a careful observer and studied the problem by writing to a number of our baking powder

companies. She found that one company used egg white in the production of its baking powder, and that she was using that powder. On changing, the boy became free from hives, but on using it again symptoms occurred. This illustration only goes to show what a small amount of food it takes to produce urticaria. It shows also the importance of absolute removal of the foods to which patients are specifically sensitive.

Like other allergic conditions, the cause of all cases of urticaria cannot be found, but judging from the evidence now at our disposal it seems that probably all urticaria is due to a specific sensitization to foreign protein. The hereditary predisposition seen in nearly all cases of urticaria tends to strengthen this supposition. Therefore, every case should be thoroughly tested and retested as a means of finding the exciting factor. Treatment based on such findings will give partial or total relief in a large per cent of the cases.

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### A SURGICAL DIABETIC

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LEA A. RIELY, A.M., M.D., F.A.C.P.  
OKLAHOMA CITY

In selecting a subject for an audience consisting of physicians of so many specialties, I think I could choose no subject so replete with interest to all as to discuss the diabetic's hazard in surgery. In taking up this clinic I want to present a case which we had in the University Hospital, of which we feel justly proud because of the dangerous complications which confronted him, the way he cooperated with us and the marvelous results which consummated his management. I wish to give credit to no single person but emphasize the results of team work of an interested hospital personnel, surgeon and internist. The fact that the patient was so steady and level headed and followed explicity in what we told him enabled him to keep on with his job, enabling him to support a widowed mother and carry a brother successfully along a management of diabetes, which helped him also to keep up his work, thereby making an asset out of a liability.

Now the fools, the fool hardy and the headstrong diabetic soon come to grief, because he turns his deaf ear to the instructions which are so essential to life and health.

The diabetic who follows explicitly good and sane advice can carry on his business, rear his family, enjoy life as his more fortunate brother who has no such handicap.

The diabetic, like the tubercular, should institute treatment early while the pancreas and lungs are still in a state capable of rehabilitation and not wait until changes in the histological tissues make them incapable of reversion.

We have many cases of diabetics sent to the hospital in coma, but the death rates from coma has gone almost to the vanishing point unless some fatal complication comes in which takes them off, rather than the coma, which was formerly the cause of exit. We have many surgical complications of the diabetic and we carry them through their surgery with apparently no more hazard than their brother, who has not such a handicap but we do it by preparing them for surgery, getting them well filled up on carbohydrates, fluids and controlled with sufficient insulin. A fat free or fat poor diet is also advantageous when an operation or anaesthesia is required.

The greatest cause for surgery which we get among our diabetics is due to carbuncles and these have been very large indeed, some of them reaching a diameter of eight inches. Yet with an electric cautery knife, after proper preparation, they came through very easily.

One surgical case which I wish to report is that of:

E. G. (10-6-28) 18 years old, weight 126 pounds, height 6 feet 1 inch, operating an elevator in a public building, first noticed about three months ago that he tired more easily as evening wore on. Noticed a more frequent desire to urinate and passing of larger quantity than usual. Noticed that he awakened to urinate several times at night, a dryness of the mouth and would consume more water and greater amount of food. Had vague pains in his joints and pains in the lumbar region. He had no boils, carbuncles, skin lesions, no failing sight. He gave no history of any familial obesity or diabetic family trouble. His extreme height and slender body concurred in Joslin's type of youth, who would be most likely to develop diabetes.

He had consulted two different physicians who prescribed for him without examining his urine and thereby had shot

wide of the mark with the result that he continued to become worse and worse until he was brought to the hospital on 10-6-28 in a stuporous condition, air hunger without lividity, lessened tension in eyeballs, eyes sunken, skin dry and flabby, sweet odor of breath, CO<sub>2</sub> alveolar tension 30, acetones and sugar abundant in catheterized specimen of urine, also with a shower of casts and red cells, tenderness over the pancreas, diminished reflexes, leucocytes 20,550, blood sugar 560 mgms. per 100 cc. of blood, abdomen slightly distended and tympanitic.

He was put to bed in warm blankets, given an enema, his stomach was lavaged and showed coffee ground retained contents and a liter of tap water was left. He was given 25 units of insulin every hour until urine drawn from a retention catheter showed an absence of sugar and acetones. He was given intravenously very slowly 1000 c.c. of 5% glucose solution with 25 units of insulin. Insulin dosage was gradually lengthened until he was only receiving four doses a day. One dose had to be given at 3:00 a. m. to maintain him sugar free during the twenty-four hours.

In eight hours he had regained consciousness and was able to eat carbohydrates which were given ad libitum controlling it with insulin, computing two gms. of carbohydrates to one unit of insulin as a basis to start from.

He was given proctoclysis and intravenous 1000 c.c. glucose 5% daily, for three days, after which his appetite and strength enabled him to eat abundant carbohydrate food, which we took care of by insulin.

As days rolled on the lost glycogen in the liver and other structures had been replaced. We put him on a maintenance diet consisting of 60 gms. of protein, 150 gms. of fat and 75 gms. of carbohydrates daily, which meant about 30 calories per kilo of body weight. We gradually raised his carbohydrates until he was getting 125 gms. per diem with the other components remaining the same. His tolerance rose gradually until he went out of the hospital in four weeks, using insulin 10 units morning and 5 units evening. The nurses' force at the diet kitchen taught him to weigh and count his calories in which he was an apt scholar.

He went back to his former work and in six months was able gradually to diminish and finally to discard his insulin

entirely, because of increasing sugar tolerance, due to a rest of the isletin glands of the pancreas, and kept on a diet which enabled him to gain about six pounds.

After a few months he brought his brother to see me and I found him to be diabetic. His knowledge of computing his diet stood him in hand to teach his brother the principles of measured dieting and his brother was not compelled to go to the hospital, which would not have been possible because of economic conditions at home. Joslin says familial diabetes (i. e. that which embraces brothers, sisters, and cousins) occurs in a percentage of 10% of 3200 cases.

On 8-19-29, 2:00 p. m., was admitted again with history of having a pain in abdomen for two days with slight nausea, vomiting and fever, his abdomen slightly distended, right side more rigid than left with finger point tenderness and cutaneous hyperesthesia over McBurney's point. Leucocyte count 13,600 with 68% polys. at 2:00 p. m., and 7850 with 88% polys. at 6 p. m., at which time cutaneous hyperesthesia was gone and we felt that the appendix had become gangrenous. Pulse had gone from 100 to 130 and temperature had reached 104, skin dry and hot and with consultation from Dr. LeRoy Long, Jr., he decided to operate at 6:30 p. m.

When he entered the hospital he had sugar 4 plus, acetone 4 plus and blood sugar 231, but when he went to surgery at 6:30 p. m., i. e., five hours after entering hospital, he was sugar and acetone free, having received 1250 c.c. of water, 50 gms. glucose and 80 units of insulin.

Local anaesthesia and gas was used and Dr. Long found a ruptured gangrenous retrocecal but extraperitoneal appendix, which is a very formidable complication in patients with the best of resistance. Appendix removed and drainage was left in and he was returned to bed.

During the first twenty-four hours in the hospital, he received 5575 c.c. of water by intravenous method, subcutaneous gavage and proctoclysis. He also received 125 gms. of glucose with 325 units of insulin.

His temperature of 104 degrees came down by lysis and was entirely gone at the end of nine days. His pulse was 96 in thirty hours but he was held stuporous with morphine to splint the bowel and allow the peritonitis to subside.

Glucose and insulin intravenously was continued until it was safe to let him take food by mouth when insulin alone was continued. He made an uneventful recovery and left the hospital in forty days, his delay being caused by the drainage at side of the operation.

He has never gained his preoperation sugar tolerance so has to continue with insulin 10 units morning and 5 units in the evening. He is still on a diet of P 60 F 165 COH 125, is working every day, apparently suffering no inconvenience from his surgical or medical experience.

The loss of tolerance of carbohydrate by the diabetic during an infection is temporary, not permanent, according to Peters. He reported several cases with striking decrease in tolerance during acute illness and later a recovery of tolerance even up to 275 gms. carbohydrate, with adherence to diet the loss of tolerance did not disappear. Joslin says it is certainly significant that even in a diabetic an infection does not permanently increase the severity of the disease.

Points to be considered in one in diabetic coma or approaching coma which are confusing in the presence of an acute infective process which helps to precipitate this coma and makes the management of the case more difficult:

1. A patient in diabetic coma practically always presents a leucocytosis, in most cases going to 20,000 white cells or over a cubic millimeter. Hence this should be considered in the differential diagnosis of any condition associated with leucocytosis, and especially so in appendicitis.

2. A patient in diabetic coma nearly always has vomiting, indigestion and distress in the epigastrium.

3. In a diabetic patient appendicitis is as insidious as coma and may simulate it.

4. Pain in the abdomen is a frequent symptom in diabetic coma and may simulate a ruptured gall bladder, ulcer of the stomach or appendicitis.

5. Abdomen in appendicitis may be soft and the temperature low and the pain may be a very minor affair.

## HYGIENE OF GESTATION

J. H. ROBINSON, M.D.  
Oklahoma City Clinic  
OKLAHOMA CITY

Obstetrics has been considered a special branch of medicine for approximately a century. The development of its many phases has been prompted by the increasing intelligence of the races and by the high rate of maternal and infant morbidity and mortality. The emergencies in obstetrics has sounded the bugle call for preparedness. We consider pregnancy a normal physiological function, yet in many cases it so closely borders on the pathologic that care and guidance thru the period of gestation is the one and only means of safety. Neglect allows toxemia to take its toll: it may allow an uncompensated heart to give way at the goal. Neglect by the physician during pregnancy reduces the profession in standing to that of midwifery and educates the people to call upon us only during emergencies and deprives us of prophylactic care, which is the greatest benefactor in medicine.

Pre-natal care should be the strong arm of safety and confidence to the expectant mother. By pre-natal care, eclampsia can be almost entirely eliminated, as well as many abortions and other accidents of pregnancy. In the year of 1925, records show that 4,845 women died of eclampsia, and 6,345 died from puerperal infection.

Execution of pre-natal care and elimination of neglect on the part of the physician we would conservatively estimate should reduce these figures 90%. We find that about 80% of the birth certificates in America are signed by the doctors who do general practice; so the greatest opportunity for reduction of this tremendous death rate is afforded to the family doctor. Of the 17,000 maternal deaths in 1925, 11,000 were due to toxemia and infection. Pre-natal care during gestation and aseptic precautions at delivery will reduce this mortality at least 90%.

Men who are specialists in obstetrics have long since been donating much of their time to preventative obstetrics thru pre-natal care. Many of the men doing a high type of general practice care for their maternity cases as intelligently and beneficially as the specialist, and there is no reason why they should not. There is a very high percentage of doctors who have

not as yet awakened to their duty to the expectant mother, thus protecting the American home.

I am told by some doctors that women just will not come in for pre-natal care. If this is true, I believe it is largely the doctor's fault for he fails to inform his patients of the importance of it. On the other hand it is my experience and I am told by other physicians that women respond promptly and are eager to conform to directions ever after it has been explained to them.

I have never practiced in the country, but I am told by some of my country doctor friends that farm women cooperate fully once they are told, and in addition to this, the care of the expectant mother has been the means of building up a lucrative practice among the best and most intelligent folk of their communities.

I shall invite your attention to a routine similar to the one which I follow. At the first interview, I take or have taken, a history of the patient's past illnesses and her present obstetrical status. Then comes the routine complete clinical examination. This is made as thorough as though we were searching for some obscure ailment. Pelvic measurements always made in the primipara; urinalysis is done at this time. At the completion of this, the patient is instructed as to her physical fitness. Treatment can be started if there are any defects such as malnutrition, goiter, pyelitis or other remedial ailments. If the patient has a rachitic, contracted or deformed pelvis, they are told promptly that a Cesarean section just before the onset of labor is the procedure of choice.

Many years ago we were taught that rickets and other malnutrition ailments were contracted during the first three months of the child's life. Now we say that rickets starts in utero, either because the mother eats or assimilates insufficient vitamins. The skinny women are started on cod-liver oil immediately. The fat ones do not take the cod-liver oil readily as they are afraid of gaining, so they are encouraged to drink freely of fruit juices and eat fresh vegetables. They are advised as to the danger signs of toxemia in pregnancy, and told to report at once should a sign of danger approach. During the last half of pregnancy the baby's bones are forming, thus this is the time of its parasitic action on the mother. Calcium, iron and all the minerals present are drawn

from the mother's bones and teeth at the great expense of the latter. Fortunately the bones regenerate and no damage is done to them but it is a different story with the teeth; cavities develop and the dentist later on gets to make a new set of teeth. He profits because of the doctors' failure to prescribe for the needs of his patients. It stands to reason that during ossification in the fetus which is the last half of the pregnancy, it is the time of heavy draw on the mother. This is the time the damage is done to the teeth. At this time we should prescribe calcium, as well as vitamins. Cod-liver oil probably tops the list, but is practical only in the women of an average build and the thin subjects. In the stout women we advise them to drink some kind of citrus fruit juice twice daily and in addition take one dram of Upjohn's calcionates twice daily. This is thought to approach meeting the demands of the fetus and to protect the mother against an overdraft on her deposit of minerals, thus preserving her teeth.

Dr. Davis of the Dental School, University of Indiana, has contributed much to this field. A report of his research and findings are most instructive. After studying his writings and applying his teachings, our observation leads us to conclude that dental food is needed and not medicine. Calcium can be given in many ways. I use calcionates, or calcium lactate because it seems most practical and least expensive; and vitamins thru citrus fruit juice, viosterol or some type of cod-liver oil. We must explain to the mothers that these preparations are food for her bones and teeth, and for her developing embryo, and they are not medicine. When the expectant mother understands that this is a means of protecting her teeth from decay and will assist materially in preventing her from having to wear false teeth soon, she gladly accepts the advice.

#### CARE OF THE BREASTS

This upon first thought seems a matter of little practical importance, and yet when neglected may be the origin of the greatest discomfort in the pregnancy. At the initial examination of a patient, if we look closely around the nipples, we see the external layers of the skin to be broken in places, leaving a net work of small scales. It is at the base of these scales near the orifice of the nipple that fissured nipples start, also at the base of these scales out in Montgomery's area where infection

creeps in. These things occur during the first two weeks of nursing. When the patients are instructed as to the care of the nipples at the time of their original visit, or even during the last two or three months of pregnancy, all this can be prevented; also the soreness which occurs in primiparas in the first two or three weeks of nursing is greatly reduced. A very practical way is to advise the patient something of the reason why, and instruct them at each bath to use a coarse wash cloth well soaped and scrub the nipples vigorously. This removes the scales and greatly toughens the area. At completion of the scrub of the nipples, thumb and two fingers should be used to pull the nipples out and make them conical and long so as to enable nursing when the time comes and avoid the baby burying its nose in the breast in effort to get hold of a flat nipple.

#### THE KIDNEYS

There is much scientific discussion now days about the etiology of the toxemias of pregnancy. We believe that the disturbance in glycogen metabolism in the liver due to pregnancy, plays its part; also the upset in endocrine function is certainly a part of the cause, but the kidneys, by right of their position at the threshold of the elimination, figure heavily in all toxemias.

To control the toxemias is to control the function of the kidneys. Cases that are seemingly perfectly normal, are entitled to an office check up of blood pressure and urinalysis every month. To wait for symptoms of kidney pathology or toxemia before examining the urine specimen is occasionally to be confronted by a convulsion as the first warning. Then we must treat eclampsia and we have a dangerously ill patient. By instructing the patient what urinary symptoms to watch for, and report, and by doing urinalyses with regular monthly visits, every two weeks late in pregnancy, we usually catch pyelitis or any urinary pathology early enough to abort it before any harm is done. In my experience most cases of toxemia or kidney disease of pregnancy begins as a pyelitis. When this is detected early, the patients' diet can be restricted of the irritating things like pickles, mustard, vinegar, etc., and put on a bland diet of cereals and custards with instructions to drink about twice as much water as usual. The urine is alkalinized with citrocarbonate or soda for three or four days then alternating this alkaline with urotropin and acid sodium

phosphate for the same length of time. This will control and correct most of these potential eclamptics before any damage is done.

During the last month or two of gestation the doctor should know the position and presentation of the fetus. In case of a breach or an occiput posterior he can be prepared and can tell the family ahead of delivery what to expect.

When all these things are done in a systematic manner, they will greatly lower the death rates, will elevate medicine to a higher and more dignified plane and instill confidence and trust into the minds of the people.

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#### NOTHING NEW ABOUT SOMETHING OLD

H. M. McCLORE, M.D.  
CHICKASHA

Ten years ago appendicitis was a live topic. A majority of the profession was converted to the fact that no time should be wasted in having surgical care. The result was a two percent mortality. Today with so many avenues opening up to claim the medical man's attention, he is not apt to be so keen and decided about his views as he was then. The death rate today is higher than it has ever been and the morbidity is greater than it was a decade ago although we have learned much in that time. Every death from appendicitis represents an error on the part of some one connected with the case: the physician, the surgeon, the hospital, the patient or his friends. Then is it not worthwhile to freshen our memory of the symptoms, pathology, diagnosis and treatment of this condition?

The term appendicitis includes those inflammatory conditions which have their origin in the veriform process or in its blood supply and which may spread to the neighboring tissues and organs. I will not discuss the "chronic appendix," for personally I do not believe such a pathological condition exists, but rather that the so-called "chronic appendix," is a mild acute attack and should be watched very closely, for who can tell the hour when that thin wall of the appendix will perforate and that greatly feared "general peritonitis," will attack with much gusto our abdominal cavity, and our small but ever ready army of leucocytes will be taxed to their utmost

to prevent the bombardment and destruction of the contents of the abdomen? If this is not prevented life will slowly ebb from the patient. Generally speaking, appendicitis is a disease of early adult life and is slightly more common in the male. The so-called epidemics of appendicitis, I think, can be explained in one of three ways. First, that it has a common source of origin from some certain micro-organism. Second, that it is merely a coincident. Third, that as a result of careful observation by the more intelligent patient or parent, stimulated by a physician or surgeon who himself is a keen observer and who is impressed by the delay, the diagnosis is more likely to be made and the subsequent operation performed. Probably the last suggestion applies to the majority of cases.

In discussing the etiology, one recalls that the appendix is an embryological structure which has all of the anatomical characteristics of the large bowel, and yet it has no apparent function. Then would it not be logical to conclude that an organ so equipped for normal function and yet apparently does not do so, would be the one which would cause mankind a great amount of suffering and sorrow? Because of lack of any definite function, the appendix, about middle life or soon thereafter undergoes an involutional change so that finally it presents the appearance of a hard fibrous cord without any lumen, to which we give the name "appendicitis obliterans," which is perhaps the reason aged individuals seldom have appendicitis. The essential cause varies. Any organism, when favorable conditions are present in the appendix, may have pathogenic properties. The organisms usually found are the bacillus coli, streptococcus, and the staphylococcus. The place of entrance is not definitely proven, for Rosenow says it is from some foci of infection while Aschoff thinks it is from the intestinal canal and I have seen cases to fit both theories. However, I do know that when I have a patient who has a foci of infection, such as tonsillitis or streptococcal throat infection and develops acute appendicitis I am especially eager to remove that appendix at once because experience has taught me that they usually perforate early.

The symptoms of appendicitis are usually quite definite. The first is pain which is generalized in the epigastric region. This pain is cramp-like in character and

simulates the pain you had when you were a youngster and partook of too many green apples. This pain is caused by the peristaltic waves of the appendix which is trying to rid itself of the offending cause whether it be pus, a concretion or an obstruction to its blood supply.

Next we have nausea and vomiting which is a reflex mechanism of the upper intestinal tract trying to keep pressure away from the appendix by ridding itself of its contents. Due to the fact that the vomitus usually contains food which was eaten at the previous meal a "snappy" diagnosis of ptomaine poisoning is frequently made. Ptomaine poisoning is a rare condition and usually some other members of the family are ill at the same time. At this time there may be some tenderness which is elicited by deep but gentle pressure over the appendix or by rolling the fist up over the descending colon and across the transverse colon, causing a distension of the cecum and appendix. Up to this time the pulse has not been accelerated unless it is due to the vomiting, and the temperature is not elevated. The leucocyte count is usually around 9,000 or 10,000. The patients who have these symptoms have appendicitis and not ptomaine poisoning or "bowel trouble," and should be watched very closely and not given the doctor's rest medicine, namely, one-quarter grain of morphine per hypo.

After the first hours in an appendiceal infection the pathological process does not necessarily progress at an even rate and any classification as regards to the condition of the appendix must be necessarily arbitrary. But providing the pathology increases we usually begin to get definite pain and tenderness in the region of the appendix with the characteristic right rectus muscle rigidity or "kick back." The patient will flex his thigh on his abdomen and flex the leg on the thigh, for nature wants as little pressure as possible on the appendix. The temperature will rise about one-half of one degree and the pulse rate will be slightly accelerated while the leucocyte count goes to 12,000 or 13,000. As the pathology progresses the tenderness and the right rectus rigidity will increase. The leucocyte count will continue to climb, the pain still being in the region of the appendix and cramp-like in character. Now the patient may get easier and sometimes will be free from pain for a short while.

Do not think they are better for they

are in a more serious condition, for that appendix is now gangrenous. They are free from pain because the walls of the appendix are now dead and "dead tissues transmit no pain." There is no more peristalsis and no more vomiting for nature realizes that movement of the intestines will only spread the infection and yet we as physicians are wont to give castor oil and magnesium sulphate.

The symptoms which follow are due to perforation of the appendiceal walls with a pouring out of the appendiceal contents into the abdominal cavity which if not interfered with by the kindness of nature or surgery will result in general peritonitis, the symptoms of which you well know.

Now, for the diagnosis: First, I want to impress upon your minds that although it is a bug-bear to the average physician to take a complete history, it is upon that one factor that the majority of correct diagnoses are made today. No one case is so urgent that you cannot afford yourself and the patient time to take a good history. Do not jump at once into the present illnesses but rather ask their age, their previous residence, their previous illnesses, etc., and at the same time look around the room to see what your eyes will tell you. By doing all of these things you will have had time to get acquainted with the patient and in turn the patient will have had time to estimate your professional ability. I might say that best histories are obtained when anxious relatives are absent from the room, because if that patient has your confidence (and never let that confidence be misplaced) many, many times, they will give you a history that will cause a wave of surprise to roll over your ocean of intellect. They want to tell you their troubles in a truthful way so let's give them a fair chance. The history should be built step by step, by careful questioning of the patient and no history should be built to fit a doctor's pre-made diagnosis.

In making your examinations refuse to examine any patient unless they are stripper to the skin. Then first, carefully look, don't feel. Look for their type of breathing, swellings, scars, pulsations, etc. If after you have gone over a patient who has given you a history of diffuse epigastric pain with nausea and vomiting, with the pain shifting to the right lower quadrant and the physical findings are as I have previously mentioned, you have a

definite case of appendicitis and are ready to institute treatment. I realize that many abdominal pains are very hard to diagnose and a good rule to follow is "if a patient has severe abdominal pain which does not cease in six hours and no diagnosis can be made, advise an exploration of that abdomen."

The treatment of acute appendicitis is very important, for upon your advice depends the mortality and morbidity of that individual. From time to time some man has become famous by advocating something new in the line of therapy for appendicitis and each time many have lost their lives with their appendix still in their abdomen. My advice to the doctor who sees a case of appendicitis is this, explain the nature of the case to the patient, or the parents, and impress upon them the risk they take in refusing an early operation. If they agree, all well and good, surgery should be instituted at once. If they refuse an operation, I would advise you to quit the case since by doing this your mortality will be greatly decreased. Why should you allow yourself to be influenced to give that patient morphine and come back in a few hours at which time the symptoms and findings will be masked? Why should you give that patient castor oil or magnesium sulphate, when nature has tried to rid that appendix of the offending cause by vigorous peristalsis and having failed she has resorted to paralysis of the intestines? Yet, we as physicians sometimes give these drugs or their sister cathartics and cause early perforation of many appendices. You may rest assured that if a patient does recover from an attack of appendicitis without surgery nature did it and not the doctor.

My impression of proper surgical treatment consists of removing the appendix in every case unless you have an abscess which is so constructed that removal of that appendix will tear down the walls of the abscess, in which case place rubber drainage in and close the abdominal walls in layers. Personally, I like rubber drainage one-quarter inch in diameter, with fenestrated ends. These drains are loosened and lifted every day after the second or third day, thereby keeping no pressure on any one place on the gut and fecal fistulas are very rare. Since spinal anaesthesia has proven so safe and satisfactory, I open all abdomens regardless of the condition of the patient, as I feel that the patient cannot be improved without drainage

and by using spinal anaesthesia there is absolutely no shock. I cannot say the same for the treatment of a toxic patient when an inhalation anaesthesia is to be used as the post operative shock and vomiting will usually end it all.

The post operative care of a perforated appendix whether it be localized or generalized consists of plenty of morphine to keep that patient quiet and splint the intestines. Water, glucose and saline by the pints, either by proctoclysis, hypodermoclysis, or by venoclysis. If an abscess develops in the pelvis drain vaginally or rectally. I do not use Fowler's position, for the abdomen is so constructed that it will drain properly when the patient is flat in bed and it takes twenty-five percent more energy to sit up than it does to lie down, so why exhaust the patients by keeping them in a sitting position?

In closing, I would emphasize that immediate surgery is the safe treatment for acute appendicitis. Never give morphine until a definite diagnosis is made and consent is given for operation. Never allow a patient with acute appendicitis to take cathartics.

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## CONGENITAL DISLOCATED HIP

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ELIAS MARGO, M.D.  
OKLAHOMA CITY

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Congenital dislocation of the hip is common, especially in France and Italy. It is more frequent in females, the ratio being practically 7 to 1. A unilateral displacement occurs more frequently than bilateral, the former being about 70% of the cases. Again, the left hip is more often affected than the right, the proportion being almost 2 to 1.

The causes are not known. It may be a primary congenital defect. Some believe it to be secondary because they think the head of the femur and acetabulum show changes which they interpret to result from disuse. Heredity seems to play a small role. Whitman quotes of a family of 9 children in which 3 females had dislocation of the left hip. Probably in some cases at birth, a subluxation occurs which becomes complete with muscular effort and walking.

The changes which exist are commonly an upward displacement of the femoral head and backward, occasionally anteriorly. The acetabulum is shallow, irregular and filled with cartilage and fibrous tis-

sue. The rim is deficient. The capsule stretches allowing the head to get a position outside of the acetabulum on the dorsum of the ilium. Thus the capsule acts as a ligament or support for the body weight. The head of the femur may become flattened, the neck shorter and with a twist or torsion, which may be a factor of great trouble in replacement. The muscles about the hip assume adaptive changes, being shorter or longer than normal as their origins and insertions are brought nearer together or separated by displacement of the head of the femur. The pelvis as a whole may become distorted. When dislocation is of long standing, a shallow false acetabulum may result on the ilium.

The clinical manifestations are usually not detected until the child walks. During the early walking period, a slight limp is noticed. This becomes pronounced progressively. Some very closely observing mothers may notice that one limb may not be actively used by the child in its early infancy. The mother may get the impression that something is wrong, in which case, an early diagnosis may be made. But as a rule, the orthopedic surgeon does not see the case before the second or third year. As the child grows, the limp becomes worse and if bilateral, assumes a waddling gait.

Early there is no pain as this usually does not occur before puberty. In childhood, all motions are increased; in later life, decreased, particularly abduction. The greater trochanter is higher than normal and visibly prominent in the gluteal region. The hip is abducted, slightly flexed and internally rotated. In single dislocation, the limb measures shorter, the length varies whether the leg is pulled from or pushed toward the pelvis. In bilateral conditions, the perineum is wider. A marked lordosis or sway-back results with posterior dislocation while none when the anterior type is present.

With the physical signs and the X-ray the diagnosis should not be difficult. The prognosis without reduction is permanent disability, as the deformity, pain and discomfort increase with age. If treatment is instituted early, the prognosis is good. This varies with age of the individual as the earlier the treatment, the better the results. Treatment after adolescence, does not produce good function and when instituted after this period, the possibilities of satisfactory results, diminish with age.

Reduction may be accomplished by manipulation or open surgery. The method of choice depends on the age, condition present and on the operator. Manipulative or nonoperative methods have been devised by Lorenz, Calot, Hibbs, Putti and others. Except in cases of very early life, a general anaesthetic is required for the reduction. The keynote is gentleness in manipulation. First the hip is stretched, the muscles being kneaded, stroked and massaged.

Following the reposition of the femoral head in the acetabulum, some method of retention must be employed, usually a plaster-of-paris hip spica is used. The position employed is of full abduction, flexion and external rotation of the hip with the knee flexed. Other methods are employed also, such as traction.

Radiograms or fluoroscopic examinations should be made every time the cast is changed which as a rule is every 6 to 8 weeks. A period of 6 to 12 months is ordinarily required for the acetabulum to develop and for the head to be retained in its anatomical position. Inducement to walk and gradual weight bearing is then encouraged. Physical therapy should then be employed in the restoration of function.

Putti, very recently, described a very simple method in infants in the first few months of life which in his hands appear to be perfect. The technique consists in using a wedge-shaped cushion between the legs so that the limbs are abducted day and night. This cushion is used in both unilateral and bilateral cases. This method seems to be the ideal treatment. The danger and risks of anaesthesia and trauma are avoided and besides the hygiene of the child is cared for which to my knowledge is the only method that will do so. To employ this form of treatment, one must do it early, the sooner the better. Putti states as follows: "To improve the results of the treatment of congenital dislocation, one must lower the age limit for beginning treatment." But to render this possible, it is necessary for parents to learn to bring their children for medical examination early and that the doctors shall be able to make the diagnosis in time.

Open surgery seems to be indicated in older children, especially after 8 years of age. The number of cases runs from 5% to 8%. As a rule, the conservative method is first employed. In the New York Orthopedic Dispensary and Hospital, the belief is that practically every congenital dislocation of the hip within a reasonable age

limit, can be reduced by open operation and in that way improved. Personally, I am inclined toward the nonoperative method in all children except in some persistent deformed cases and not to operate until an effort is first made by manipulation. Later in life, surgery is usually indicated. The technique employed depends on the condition present. In a few cases, a simple cleaning out of the socket is all that is necessary; in others, an artificial acetabulum must be formed on the dorsum of the ilium or a shelf may be thrown down from the ilium to hold the femoral head in position. Other operations are also used, of special note may be mentioned, the bifurcation and the reconstruction methods.

Occasionally, when the femur torsion is great, an osteotomy may be necessary to correct the deformity. However, it may be suggested also that the dangers of open surgery even if slight, must be considered. Anatomical reposition with little or very limited motion, gives better function in unilateral cases than transposition, but ankylosis with deformity is no improvement on the original state. Besides, the dangers of open operation must always be considered.

The object of this paper was two-fold; first, to present, in as brief manner as possible, the subject in general. Second, to prepare and tabulate statistics studied by the writer in three different institutions. A very careful study of each case has been made. Through the kindness of the authorities in charge of The Orthopedic Hospital School of Los Angeles and The Texas Scottish Rite Hospital for Crippled Children at Dallas, their cases were studied and enumerated.

To these two series, I am adding our own private cases treated through the Reconstruction Hospital. The system of classification as used by the Massachusetts General Hospital is being employed. This classification is based on results obtained at the termination of treatment and considers three conditions. These are the anatomic, economic and functional results and they are tabulated 0 to 4 in relation to actual final results. For convenience, letters are used in the tabulation, A. for anatomic, E. for economic and F. for functional. In the same way, the figures of 0 to 4 are employed following each letter denoting the degree of result obtained. As an example, A - 0 means no anatomic reposition of the femoral head in the acetabulum resulted. A - 1 poor results. A - 2 fair.

A - 3 good. A - 4 perfect. The same scheme is applied for economic use of the hip referring to usefulness as well as the final function of the hip relatively to motion in general.

The number of cases studied were 79. Of this number, 30 cases were treated by the open surgery method and 49 by the closed method. The average of results in the three institutions were as follows:

**ORTHOPEDIC HOSPITAL SCHOOL**

Closed	A - 2.48	E - 3.24	F - 3.2
Open	A - 1.47	E - 2.11	F - 1.94

**TEXAS SCOTTISH RITE HOSPITAL FOR  
CRIPPLED CHILDREN**

Closed	A - 2.8	E - 2.7	F - 2.5
Open	A - 2.75	E - 2.58	F - 2.16

**RECONSTRUCTION HOSPITAL**

Closed	A - 2.8	E - 2	F - 2.5
Open	A - 2	E - 2	F - 2

From the above statistics, it is observed all three institutions have better showings in all three conditions of final results in respect to anatomy, economy and function of the individual by using the conservative closed method than when open surgery was employed.

It is my firm conviction that the closed method should ordinarily be first employed and when found lacking, to resort to open surgery. In babies and young children, the closed method should always be used and allow nature to aid in the development of the normal hip. In older cases, the choice of treatment can be made only by following a very careful study of the affected hip or hips. The older the individual, the more open surgery is indicated and the less good results are obtained. Finally, allow me to make a plea for early diagnosis and treatment.

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**WOMAN'S AUXILIARY TO THE  
OKLAHOMA STATE MEDICAL  
ASSOCIATION**

**MRS. JOHN Z. MRAZ**

Editor Oklahoma State Medical Auxiliary  
OKLAHOMA CITY

There are only two organized county medical auxiliaries at the present time in the State of Oklahoma. They are Oklahoma county and Pottawatomie county auxiliaries. On the roster of this State auxiliary are also the names of a few interested individuals over the State. Mrs. Lloyd Sackett of Oklahoma City, is president this year and Mrs Herbert Wright of Shawnee, is president-elect.

The Oklahoma county auxiliary was organized in October, 1925, with forty-three charter members, with Mrs. Edward P. Allen as its first president. The membership has increased to one hundred and ten physicians' wives, all residing in Oklahoma City. Mrs. Carroll M. Pounders is now president. Dues are three dollars per year. This auxiliary meets the fourth Wednesday of each month for an all day session, in the basement of the First Presbyterian church, to sew for the crippled children's unit of the State University Hospital. Approximately twenty to twenty-five garments have been made in one day. The members enjoy a covered dish luncheon. The auxiliary has pledged to the local Red Cross the services of two women in the morning and two in the afternoon on this meeting day, for case committee work. This is interesting work and gives those who do not care to sew an opportunity to be helpful. In addition to its regular program, Oklahoma county auxiliary, to date, this year, has donated the following: at Thanksgiving, food to needy families; at Christmas, fifty dollars to the local nurses' bureau for philanthropic work; in January, to the same bureau, a layette comprising more than sixty garments. The organization has also cooperated with the county medical society in professional projects and often in a social way.

Pottawatomie county auxiliary has for its president, Mrs. H. G. Campbell of Shawnee and has a membership of twenty. It meets the fourth Wednesday of the month at one o'clock for luncheons, followed by a business meeting. The program for the present year is a study of "Doctors in Literature." These ladies have also outlined a program for the study of the State health laws. This year the Pottawatomie auxiliary introduced Hygeia Magazine in the public schools of its county and in the public library in Shawnee. It cooperates with civic and charitable organizations, also sponsors health programs in various clubs in surrounding communities.

Let us hope it will be possible, in the near future, to make personal contacts over the State and thereby accomplish the organization of more county auxiliaries in Oklahoma. In the meanwhile, let us hope that what these two organized counties are doing, will stimulate the desire in the minds and hearts of other doctors' wives to become interested in the problems and the work for which they are fitted.

# THE JOURNAL

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.  
DR. P. P. NESBITT.....Associate Editor  
Medical Arts Building, Tulsa, Okla.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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### EDITORIAL

#### CARE OF THE DIABETIC FOOT

While diabetes is not nearly so common as many other affections confronting the physician, its occurrence arises often enough to keep all types of practitioners constantly on the lookout for its appearance, if it is to be combated with maximum efficiency. It goes without saying that it is rarely overlooked or not discovered by the systematic physician. Conversely an amazing number of its manifestations are not observed or are ignored by the careless and slipshod attendant.

Since the perfection of insulin the out-

look for the diabetic has been tremendously improved. Necessary surgical procedures which were formerly almost surely fatal may now be carried out almost with impunity by the proper application of insulin. There are, however, one type of complications not avoidable by the use of insulin or by any system of medical treatment, and that is the relatively enormous number of affections of the foot which vary from simple maceration and various types of malformation to dangerous ulceration and destructive gangrene. Howard F. Root, Boston,\* has ably called attention to the question of diabetic gangrene and lays down the dictum that "exclude infection and trauma, and death from diabetic gangrene would disappear." To capitalize our present knowledge of diabetic complications it is going to be necessary that a very close understanding be had between the attending physician and his patient. It goes without saying that absolute obedience and cooperation from the patient is necessary. Assuming that we have such obedience and cooperation and the patient is in the hands of an intelligent advisor the comfort and life of the patient should be greatly prolonged. As to the prevention of gangrene, Root notes that of seven patients who had suffered amputation of legs and toes, three had cut corns without precaution. Clean hands and clean feet would have saved their legs. Another stepped on a nail and continued to work, in spite of the suppuration. Five and six had blisters produced by tight shoes, while the seventh walked barefoot in zero weather, striking his toe without remembering any injury, so deficient in sensation or slight was the trauma that resulted in gangrene. "Defective vision resulting in too deep cutting of corns, improper shoes, causing trauma from pressure, unprotected feet and neglect of minor infections are causes that may be combated by the education of the patient and by careful and energetic treatment by physicians."

Root thinks that the feet of diabetic persons are vulnerable because they are mechanically deformed, that such patients over fifty years of age are rarely free from such mechanical handicaps as hammertoe, arthritic changes, calluses, bunions and all their concomitant miseries. Epidermophytosis is present in 70% of diabetic patients, this providing a portal of entry which may result in many very severe conditions.

He advises hygienic care of the feet

by daily washing with soap and water, thorough drying, application of hydrous wool fat, alcohol rubs, if the feet become too soft, very careful care of the nails, properly fitting shoes, avoidance of walking on the barefeet, the use of bed socks instead of hot water bottles, bags or electric heaters. The presence of callosities or corns call for the indicated treatment. Imperfect circulation should be treated by proper exercises. These patients are advised not to wear circular garters or to sit with their legs crossed. All abrasions of the skin should have proper and prompt first aid treatment, preferably by a physician. Of course throughout this care of the feet indicated, medical and diatetic care must not be overlooked.

\*Root, Howard F., "Diabetic Gangrene; Medical Treatment and Prophylaxis" Archives of Surgery, February, 1931.

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### STATE BOARD OF MEDICAL EXAMINERS — BIENNIAL REPORT— 1928-1929 AND 1929-1930.

Complying with the law governing such matters the Secretary of State Board of Medical Examiners, Dr. J. M. Byrum, Shawnee, has filed his biennial report with the Governor. Briefly quoting the authority for its existence, and the personnel of the Board, the report shows the following licenses granted during the years indicated:

By Examination, recognized graduates	106
By Reciprocity from other States	89
By Re-Registration Territorial License	4
By Duplicates of lost, destroyed license	5
Total	204

During this period 55 have been endorsed for reciprocity to other States, leaving a seeming net gain of 149 for Oklahoma. Actually, however, there has been no gain in the number of physicians actively engaged in the practice of medicine within this State. The statistics have not taken into consideration the small per cent of physicians engaged in other or allied activities, nor those who may have retired or those who have died. The report notes that there is no provision providing for registration or check of the physicians of the State as there are no available funds for making such census and it is noted that the directory of the American Medical Association lists 2435 licensed physicians within the State, which number is considered substantially correct.

As to the average of physicians, the report notes that there is one physician for each 990 population, and for comparisons sake it is noted that Missouri has one for

641; Kansas has one for 828; Arkansas has one for 955; Texas has one for 882; while the average for the entire United States is one for 819. In this connection it is noted that while there is no actual general shortage of physicians for the State as a whole, it is generally admitted that many small towns and rural communities have no resident physician, where they originally had one or more. It is believed, however, that the rapid expansion of good all winter roads render most people readily accessible to the physician. As to certain isolated communities where no physician is available, investigation has shown that the "doctor could not make a living and had to move." The possibility of a community chest fund in some form or other, which would guarantee a physician at least his maintenance might secure these localities proper service.

There remains a balance of \$7868.34 in the hands of the treasurer.

This report shows that the Board has conducted its affairs in an able and business like manner, and it is generally conceded, considering the crampy legal restrictions surrounding every movement of this body, that they are functioning in an extremely satisfactory manner.

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### AMERICAN JOURNAL OF CANCER

It is not often that a publication is bodily picked from its proper place among book reviews or book notices and hurtled into editorial notice, but when the publication is of vast importance, notice, commendation and advertising of it is more than proper.

The American Journal Of Cancer is a continuation of Cancer Research. The Journal of Cancer Research was organized in 1916 by the American Association for Cancer Research. The present Journal which appears under a new name is the official organ of American Association for Cancer Research and the American Society for the Control of Cancer.

The editor, Dr. Francis Carter Wood, of the Institute of Cancer Research of Columbia University, is one of our profound authorities on cancer. The editorial board is composed of the most forceful authority on its varied lines to be found anywhere in the world. The publication will be issued quarterly from 654 Madison Avenue, New York, at a price of \$5.00 annually. Some idea of the importance of this

work will be appreciated when it is understood that 301 pages are devoted to original articles and editorials; 8 pages to book reviews; 243 pages to abstracts. The abstracts covering practically every phase of cancer and from over the civilized world generally.

### — O — VIOLATION OF THE MEDICAL PRACTICE ACT

For the information of some of our members it might be well to quote a part of a recent opinion of the Attorney General's office with reference to violations of the medical practice act which such violations might easily produce revocation of license to practice in Oklahoma. The part quoted reads as follows:

"However, the Attorney General is further of the opinion that a physician may not employ an agent at an agreed compensation to solicit and secure the execution of such contracts. Such practice would appear to be a violation of the 7th sub-division of Section 8797z3 of Harlow's Supplement, to which you refer. Such employment is certainly for the purpose of procuring practice."

### — O — **Editorial Notes—Personal and General**

JEFFERSON COUNTY MEDICAL SOCIETY met in regular session February 4th, at Ryan. Dr. L. L. Wade, Ryan, read a paper on "Lobar Pneumonia" after which a round table discussion followed.

OKMULGEE COUNTY MEDICAL SOCIETY met February 16th, serving those present with a dinner, after which Dr. W. P. Fite, Muskogee, delivered a lantern slide address on "Arthritis." Dr. E. Levy, Muskogee, presented the subject of "Tuberculosis."

DR. GEORGE W. CRILE, Cleveland, Ohio, was a guest of the Oklahoma City Clinical Society, February 12th, the meeting being held at the University Medical School. Dr. Crile spoke on "Peptic Ulcer" in the morning and on "Hyperthyroidism" in the afternoon.

THE ROBINSON NEURO-PSYCHIATRIC CLINIC announces the opening of the Robinson School for different children. A training school with medical supervision for all types of subnormal, psychotic and unadjusted children. The address is 1432 Professional Building, Kansas City, Missouri.

THE AMERICAN COLLEGE OF PHYSICIANS will hold its 15th Annual Session in Baltimore, March 23-27, 1931, with an additional day

at Washington, March 28, 1931. Among the Oklahomans noted on the program are: Dr. Ray M. Balyeat, Oklahoma City, who will deliver a lantern slide address on "Allergic Migraine," and Dr. E. J. Moorman, Oklahoma City, who will hold a medical clinic on "Pulmonary Tuberculosis," at the University Hospital of Maryland School of Medicine, on the afternoon of March 25th.

MUSKOGEE COUNTY MEDICAL SOCIETY meeting January 23rd heard Dr. D. H. O'Donoghue, Oklahoma City, on "Infantile Paralysis," and Dr. Hugh Jeter, Oklahoma City, on "Bone Tumors."

At the meeting of February 9th Dr. Walker Morledge, Oklahoma City, read a paper on "High Blood Pressure;" Dr. Basil A. Hays, Oklahoma City, read a paper illustrated with lantern slides, on "Clinical Types of Nephritis;" Dr. E. P. Allen read a paper on "Toxemias of Pregnancy."

A special meeting was held February 24th with Dr. Ernest Sachs, St. Louis, as speaker, who delivered an address upon "Brain Tumors."

THE MARCH, 1931, issue of *The Radiological Review* (Chicago) is devoted entirely to Radium, and is the Fourth annual "Radium Number" of this publication.

All the articles are written exclusively for this issue, and collectively, they can be considered to present the present status of Radium Therapy as practiced in this country. The presentations are from among the leading radium therapists of America and include such names as Healey, Levin, Kaplan, Eller and Fox of New York, Simpson of Chicago, Quigley of Omaha, Withers of Denver, Keith of Louisville, Murphy of Minneapolis, Bowing and Fricke of Rochester, Minnesota, etc.

Interest in radium is not on the wane, but on the contrary is becoming more firmly established in our armamentarium. While it is true that radium is useful in a comparatively small number of afflictions to which the human body is heir, it is so effective that it is truly "invaluable." Who will deny the remarkable results achieved by radium in the treatment of skin cancer, menopausal uterine hemorrhage, carcinoma of the cervix, and certain types of nevi?

### DOCTOR THOMAS B. LANE

Doctor Thomas B. Lane, age 73, pioneer physician of El Reno, died at his home after a long illness.

Dr. Lane was born August 10, 1858 near Springfield, Missouri. He was graduated from Missouri Medical College in March, 1886. He has been a resident of El Reno since September, 1898, practicing medicine during those years.

The Masons, were in charge of the funeral services, and burial was in the El Reno cemetery.

He is survived by his wife, two daughters and one son.

## DERMATOLOGY, X-RAY AND RADIA THERAPY

Edited by C. P. Bondurant, M.D.  
413 Medical Arts Building, Oklahoma City

Controversies Regarding Syphilis. W. H. Guy, J. A. M. A. 95:979, October 4, 1930.

With the following questions in mind, Guy undertakes to analyze the statistics on syphilis.

1. Has the incidence of syphilis been increasing or diminishing?

2. Is neurosyphilis more frequent since the advent of arsphenamine?

3. Is the incubation period of neurosyphilis shorter since the introduction of arsenicals?

4. Are arsphenamines neurotropic?

5. Is optic atrophy more frequently seen following arsenical therapy, and is arsphenamine contraindicated when optic atrophy has developed?

Guy's study indicates that arsphenamine has no selective affinity for the nervous system: in fact to effect a contact between the drug and the diseased structures is one of the difficulties in the treatment for syphilitic involvement of the central nervous system. His point of view is that all sorts of accidents may complicate arsenical treatment for syphilis, but there is no proof that they are due to neurotropism on the part of arsenic. The data available shows a slight decrease or an almost stationary rate in the incidence of neurosyphilis in the period since the advent of arsphenamine. The mortality from these sources has definitely decreased during the same period. Early neurosyphilis unquestionably became more frequent after the introduction of arsphenamine. This may be attributed to insufficient treatment, but the same situation prevails regardless of the drug used. The trivalent arsenicals, if used with care, are at least not contraindicated but when the optic nerve is involved, tryparsamide must be used cautiously.

The Age and Sex Distribution and Incidence of Neoplastic Diseases the Memorial Hospital, New York City. G. T. Pack and R. G. Le Fevre, J. Cancer Research 14:167, June, 1930.

In this article Pack and LeFevre enumerate for us some pertinent observations on cutaneous neoplasm. They do not go into detail on this subject as it is a long and exhaustive statistical study. Cancer occurs but rarely in extreme old age; in fact, after the complete attainment of the senile state, cancer in general is progressively infrequent, with the important exceptions of squamous carcinoma of the skin, penis, lip, floor of the mouth, buccal and epitheliomas of the skin, which are more frequent in advanced years in ratio to the proportion of the persons living at these ages. Over a period of four years, the Memorial Hospital reports show that 4 percent of all their patients had epidermoid carcinoma of the skin, and seven percent had basal cell epitheliomas of the skin. 58 was the average age for the former, in more than 1,000 cases, and in the latter 61 in more than 1,400 cases. Chronologic age is not so important as anatomic and physiologic age as an etiologic factor in cancer. Thirty per cent of all malignant tumors in patients over 74 years of age were basal cell epitheliomas. The cancers of old age are usually well differentiated adult neoplasm, slow-growing, lacking the features of anaplasia and exhibiting little microscop-

ic evidence of mitosis. The cancers arising from tissue rests, are the ones that usually pursue a rapid course in aged persons. These tissue rests, after having long remained quiescent, when once excited to growth, find conditions especially favorable for unrestrained proliferation. Among the types of tumor occurring predominantly in men were squamous carcinoma of the skin, basal cell epithelioma and carcinomas of the lip, the buccal mucosa and the tongue.

Some Factors of Interest in the Grading of Carcinoma. L. H. Jorstad, J. Cancer Research 14:295, June, 1930.

Employment of histologic grading and indexes of malignancy are of enough significance that they should be encouraged to be of practical value in the prognosis and therapy of carcinoma. The most active portion of the tumor should be chosen for biopsy while the average percentage of differentiation in the portion of tumors studied microscopically should be the index of grading.

The histologic study and the grading of sixty specimens of carcinoma of the lip from the Barnard Skin and Cancer Hospital by five pathologists resulted in strikingly parallel deductions.

The clinical courses of approximately 200 cases of carcinoma of the lip and oral cavity approximated fairly well the prognosis to be drawn from the gradings of biopsies, and the latter have been of definite value in certain cases in the selection of therapy. For example, in a patient not likely to survive surgical intervention in the case of a highly differentiated growth a radical operation may be supplanted by a less radical one; and in a poorly differentiated growth one may select irradiation instead of surgical intervention regardless of the ease of attack by surgical methods.

The Treatment of Carbuncles by the Roentgen-Ray. Richard U. Light and Merrill C. Sosman, New England J. Med. 203:549, September 18, 1930.

After a review of the literature on the above subject, an analysis is made of fifty cases of carbuncles in which irradiation was done in the past six years. Five case histories are given. Filtered roentgen ray in form  $\frac{1}{3}$  to  $\frac{1}{2}$  erythema dose was used in these cases. Thirty-four patients were improved with roentgen treatment. Seventy per cent of the cases were in males, the roentgen rays helped 60 per cent of the 70, while of the females 87 per cent were improved. Eight of nine facial carbuncles were improved, and relief from pain occurred quite strikingly in these cases. Seventy-five per cent of those under 5 c.m. in diameter were benefited. The authors conclude that when benefit occurred it lay usually in a hastened necrosis of the lesion in the indurated stage. They also feel that a larger proportion than the 33 per cent of this series could have been treated by radiation alone, without surgical intervention.

Acute Lymphocytic Leukemia. Raymond M. Pearce, Brit. M. J. 2:282, August, 1930.

Pearce shows us with an example how spleen substance has proved beneficial in the cases of leukemia. His patient was a girl, aged 8, with acute leukemia, in whom over a period of three weeks the red blood count dropped to 856,000; the white blood count was 9,600, with 7 per cent neutrophiles and 87 per cent lymphocytes. She was given ten intramuscular injections of 5 cc.

of hog spleen in a 40 per cent albumin-free solution. She received these injections every two days at first and then at four day intervals. Liver extract was given by mouth. Six weeks after the first injection, the blood count showed 6,330,000 red cells, 16,200 white cells, with 56 per cent lymphocytes. Two months later we see a child in good health, resuming her work at school, and able to play like other children. The treatment with liver extract was never stopped.

### ORTHOPAEDIC SURGERY

Edited by W. K. West, M.D.  
520 Osler Building, Oklahoma City.

**Spondylolisthesis (With A Report of Four Cases),**  
by Samuel Kleinberg, M.D., New York, American  
Journal of Surgery, Volume X, No. 3, December, 1930.

The author describes the condition of spondylolisthesis as one in which the fifth lumbar vertebra is dislocated forward on the sacrum. In each of the cases there were some evidences of congenital weakness of the posterior arches.

Case I. Boy fourteen years old complains of pain in the lower part of his back, pain in his lower limbs and difficulty and awkwardness in walking. He was apparently well until March, 1928, when he stumbled and fell backwards, striking the lower part of his back against a rock. He had moderate pain at first and then, after a few days, forgot the injury. Later on he complained of slight backache and the awkward gait appeared.

X-rays were taken which showed a typical condition of spondylolisthesis, the fifth lumbar vertebra having been dislocated forward on the sacrum.

An operation was performed on this boy. The posterior arches of the 2nd, 3rd, 4th, and 5th lumbar vertebra and the upper part of the sacrum were fused. At the time of the operation, after dissection had been done, it was found that the posterior arch of the fifth lumbar vertebra was abnormally movable. There was a wide defect in the posterior arches of the first and second sacral segments. In this case a large deep bone graft was inserted on the left side of the spine, from the second lumbar to the third sacro segment.

Eight weeks after the spine fusion operation, the patient was discharged from the hospital and one and one-half years after the operation he walks comfortably and has no pain.

Case II. Man twenty-three years old. Complained of pain in his back and referred pain down in his right lower limb. His symptoms came on gradually about a year ago, after he had engaged in lifting some heavy weights.

Examination shows a marked prominence of the sacrum and a hollow above the sacrum. The dorsal area is unusually flat. Hyperextension is moderately restricted. The lateral X-ray picture shows a marked forward subluxation of the fifth lumbar vertebra. The body of the fifth lumbar is wedge-shaped. This is evidently a case of congenital spondylolisthesis in which there is a congenital division of the pedicle. As the deformity was getting worse, he was advised to have an operation, but the operation was refused.

Case III. A woman thirty-eight years of age came to the clinic with a painful back and pain referred down both legs. The pain is worse in the morning. But, she is able to walk, work, and attend to all of her household duties. She has had

no distinct type of injury but she has given birth to nine children.

Examination shows the spine to be freely movable and the motion is painless. The lateral X-ray picture shows an anterior subluxation of the fifth lumbar vertebra. There is marked elongation of the laminae of this last lumbar.

This case also appears to be a case of purely congenital type. This patient was relieved by wearing a properly fitted corset and needed no operative fixation.

Case IV. A woman thirty-two years old came to the clinic complaining of pain in the lower part of her back and a burning sensation in the right thigh. She had never had backache until last summer. She had been very active in outdoor sports such as swimming, diving, and playing tennis. She did not recall any injury and did not believe that the exercise had brought on the backache. The pain increased and finally became so severe that she could not walk.

The examination showed a well developed individual who walked without a limp, but there was a distinct hollow in the middle of her back. Flexion of the spine was markedly restricted. The other motions were only moderately limited. There was some exaggeration of reflexes. The lateral X-ray showed a marked forward subluxation of the fifth lumbar on the sacrum. This deformity appears to be a congenital one.

These four cases represent different types of spondylolisthesis. The first case which was undoubtedly of traumatic origin, a stabilizing operation was indicated for relief of pain. The second case should have been operated but refused and the remaining two cases were more properly treated by the use of properly fitted corsets as a means of external support.

From these cases we find that undoubtedly there is a condition known as spondylolisthesis and that it is a serious organic lesion of the lower spine. Evidently, it is uncommon, but it should be borne in mind that it is easily recognized, providing that a good lateral X-ray picture is made centering over the fifth lumbar area.

**The Treatment of Common Injuries of The Knee Joint** by Dr. Guy A. Caldwell, Shreveport, Louisiana, Southern Medical Journal, Volume 23, No. 12, December, 1930.

The following outline fully describes the various knee joint injuries:

1. Contusions, abrasions and bursitis.
  2. Strains of the lateral ligaments.
  3. Internal derangements:
    - a. Displaced, torn, or loose semilunar cartilages.
    - b. Pinched synovial tabs.
    - c. Loose bodies.
    - d. Torn crucial ligaments.
    - e. Osteochondritis desiccans.
  4. Fractures intersecting the knee joint from the patella, tibial plateau and femoral condyles.
  5. Punctured wounds and foreign bodies.
- Simple strain should respond to treatment within a short time, providing that proper physiotherapy is used and efficient productive measures employed.
- Typical instructions for a patient with an injury of this type are as follows:
1. Wear the adhesive stripping and massive dressing until soreness is greatly improved and there is some motion without pain; usually two to four days.

2. Use crutches without bearing weight on the joint until all swelling has disappeared and until there is no pain when the joint is flexed through at least 90 degrees of motion.

3. Upon removal of the adhesive and dressing substitute an elastic knee support and begin hot baths, followed by massage.

4. Continue the use of crutches, but begin light weight bearing only after tenderness over the ligaments has disappeared. Progress from both crutches with light weight bearing to one crutch only, and finally to a cane. The single crutch, or cane, should be used on the opposite side from the injured knee.

5. Continue use of the elastic knee support for one to two weeks after full weight bearing is permitted.

When adhesive is used for partial immobilization the strip should extend from the upper thigh down to the lower leg, crossing just below the patella with several additional strips passing three-fourths of the way around the circumference of the joint, always leaving an opening over the popliteal space. Postage stamp applications of adhesive are insufficient. Adhesive should not be applied to a hairy limb but the skin should always be shaved.

In the acutely swollen joint with intense pain, treatment should consist of recumbency, elevation, and splinting with the addition of moist or dry heat.

The "knee cage" splint, designed by Jones, is not practical and "long-leg" splints are usually not tolerated by the patient. After the patient is able to be about, the elastic bandage should be applied as it makes lighter pressure and is uncomfortable if the knee is flexed beyond ninety degrees, and thereby may prevent a displacement of the semilunar cartilage.

Aspiration of the knee joint is indicated in the following conditions:

1. When the tension of accumulated fluid is great and causes pain.

2. When an associated fracture indicates that there is hemorrhage in the joint.

3. For the diagnosis of suppurative arthritis.

A patient who continues to have synovial fluid effusion should not bear weight on the joint. A patient with a locked knee should have a manipulation with or without anesthetic. This manipulation should then be followed by fixation and relief from weight bearing.

Indication for operation on the knee, especially in cases of dislocated semilunar cartilage, should be very carefully done. Asepsis is most important. A careful closure of the joint of the knee, with particular care in placing the sutures so as to control bleeding, is essential. A massive dressing with adhesive stripping applied over the dressing is equally as safe as the plaster case and much more comfortable.

#### Conclusions

Success in the treatment of knee injuries depends upon a few simple essentials.

1. An accurate diagnosis of the nature and extent of the injury.

2. The primary indications are for replacement were displacement exists, followed by joint rest and support.

3. Due regard for the weight bearing function of the joint.

4. Recognition of the importance of controlled exercise, heat and massage in joint convalescence.

5. Knowledge of the clear cut indications for operative intervention.

6. Clean, non-traumatizing knee surgery and careful post-operative and convalescent care.

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#### KANSAS CITY SESSION OF GOITER ASSOCIATION.

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Under the presidency of Dr. Kerwin W. Kinard Kansas City, the American Association for the Study of Goiter will hold its 1931 session in Kansas City, April, 7, 8, 9. The association was organized in 1925 by a group of men who believed there was a distinct place for a society whose members would study cooperatively the various medical, surgical, pathological and roentgenological conditions associated with thyroid diseases. The phenomenal increase in membership and the character of contributions to the programs of the meetings indicate that the judgment of the organizers of this association was well founded.

It is probably true that many persons now die from nervous and cardiorenovascular manifestations which can be traced to a toxic goiter as the underlying cause. Many of these persons can be saved to become strong and happy citizens with probably no economic loss to the country if we can diagnose the goiter condition in its early stages and institute corrective therapy. It is one of the principal functions of the association to discover methods of early recognition and proper treatment of abnormal conditions in the thyroid gland.

There are few physicians now practicing general medicine who have not been captivated by the tremendous strides the profession has made in studying the etiology, diagnosis and treatment of goiter. All of us, general practitioners as well as specialists, are deeply interested in knowing what recent advances have been developed in the treatment of diseases of the thyroid gland. Almost daily we are learning that dysfunction in this organ may have effects so remote that the mind only slowly questions the possibility of a thyroid disturbance as the underlying cause.

The program at the Kansas City session will include talks and papers by men well recognized throughout the country for their progressive studies in goiter. Operative clinics as well as diagnostic sessions at the different hospitals will be helpful diversions to the didactic work. The meeting is sponsored by the Jackson County Medical Society, the Kansas City Southwest Clinical Society and the Kansas City Academy of Medicine.

Every member of the State Medical association is invited to attend the meeting. It is believed that the visit will well repay those who do go for they will hear the leaders in this phase of medicine and surgery tell about the newest and best methods of diagnosing and treating thyroid conditions. The society has tried to distribute its proceedings each year and in this way reach as many members of the profession as possible, but the printed page cannot take the place of the stimulus gained by personal attendance and visualization of the one who delivers an address.

Members desiring further information concerning the meeting may address the president, Dr. Kerwin W. Kinard, 1102 Professional Bldg., Kansas City.

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NOTE—Corrections and additions to the above list will be cheerfully accepted.

CONDENSED PROGRAM, ANNUAL SESSION, OKLAHOMA CITY, MAY 11-12-13, 1931

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MUSKOGEE, OKLAHOMA, APRIL, 1931.

NUMBER 4

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### A PLEA FOR EARLY TREATMENT OF CROSS EYES\*

C. B. BARKER, A.B., M.D., F.A.C.S.  
GUTHRIE

Ocular muscle imbalance cases are often advised to wait until maturity, with the hope that they may outgrow their deformity. The number benefited by waiting is so small, as compared with the large number corrected when treatment is started when young, that we recommend and insist that treatment be started when first discovered, which is usually between two and three years of age, and completed before the eighth year if possible.

Vision usually develops before the age of eight, therefore waiting is procrastination, due to the fact that if one eye deviates then only one eye can be used at a time, and the little patient contents himself with using the better eye and ignores the other to prevent double vision; then the deviating eye does not develop due to lack of use, during the best period for development, and this accounts for so many adult squint cases that are hopelessly blind in one eye.

The strength of each muscle for distance and near is determined by its tonicity, duction and the verting power. The position of the near point should be determined then by comparing the strength of one muscle with its opponent, we can determine whether a certain muscle should be strengthened or whether its opponent should be weakened, and this will show whether surgical or non surgical treatment is indicated.

After a case has been grouped or classified we can follow definite procedures and obtain good results.

For simplicity, I wish to separate muscle troubles into five clinical groups, i.e.:

1. Imbalance between the intrinsic and extrinsic muscles of the eye (accommodative).

2. One muscle too weak (insufficiency).
3. One muscle too strong (excess).
4. Combinations of groups 1, 2 and 3.
5. Paralysis (partial and complete).

The pictures illustrate the various groups and the treatment for that condition follows each picture.



PICTURE I. ILLUSTRATING GROUP NO. 1  
DOROTHY, AGE 7 YEARS

When the condition is first discovered we bandage the fixing eye to compel the patient to use and develop the other eye. Or one may use  $1/2\%$  atropin to blur vision in the fixing eye, to force development of the poorer eye. Glasses when needed should be worn as early as possible and constantly. Some patients will wear them at two years of age or even younger. When a little older ocular gymnastics should be started. This is accomplished by covering the patient's good eye and allowing them to play with various sized marbles, or dominoes which have small white spots, also jack straws. Suspend small rubber ball from the ceiling and let them play with it by striking and catching it. They may cut various sized pictures from magazines. Any game requiring good vision and causing eye ball to rotate, thereby increasing the strength of the muscles and

\*Pictures were shown before the Eye and Ear section of the State Medical Association at Shawnee, May, 1930.

increasing the acuity of vision, is recommended.

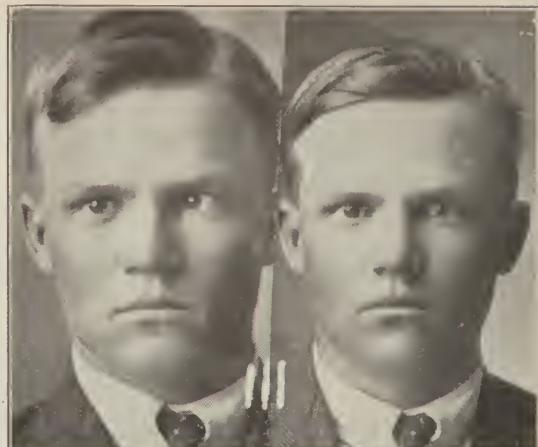
As soon as age and intelligence permits, the stereoscope and amblyscope should be used. Fusion training is a long, tedious procedure, requiring many months and an occasional word of encouragement to the patient from the family physician will help greatly in accomplishing the desired result.

This patient was three years of age when treatment was started and a strong plus lens was required to correct the deficiency of the ciliary muscles, thereby balancing the intrinsic with the extrinsic muscles, which gave the patient binocular single vision.



PICTURE II. ILLUSTRATES MUSCULAR WEAKNESS OF GROUP NO. 2

When glasses, drugs and ocular gymnastics fail, then we operate. Children should be operated before the sixth or eighth year of age, to prevent monocular blindness and allow them to enjoy binocular single vision. This can rarely be accomplished after the first decade, however, for cosmetic results, an operation is indicated at any age. Patient age 7 years. Had an insufficiency of external rectus, allowing the eye to turn inward. A six mm. tucking was done on the weak muscle. This is a very good operation, especially for children, because the muscle is not severed, nor is the thin, elastic young sclera stitched, which makes the operation fool proof and the results are very definite and gratifying. We prefer a graduated tucker and use No. 1 white braided silk thread and allow stitches to remain at least a month, or indefinitely. Three stitches are used and the middle stitch is tied first to prevent vertical deviation. See that the knots do not lay on the sclera.



PICTURE III. ILLUSTRATING GROUP NO. 3

Patient, age 15 years. Internal rectus too strong (convergence excess).

A recession (setting insertion back) of 5 mm. of left medial rectus muscle was done to lessen the pulley action on the eye ball.

The muscle, at its insertion is severed and allowed to slide back and is held in contact with the sclera at its new insertion by passing thread through superficial layers of the sclera, at the desired point, then anchored by same stitch extending to the stump of the original insertion. If the muscle is not fixed after doing a complete tenotomy the results are uncertain and in later years the eye usually deviates in the opposite direction to that which originally existed.



PICTURE IV. ILLUSTRATES THE FIRST THREE GROUPS

Patient, age 5 years, required a recession of both medial recti of 4 mm. each to lessen their excessive action, and two months later a tucking of the right lateral rectus of 6 mm. to increase its action and glasses were required to make up for the deficiency of the ciliary muscle. The above three procedures gave binocular single vision.



PICTURE V.

Patient, age 50 years. Right eye blind. A 7 mm. tucking of right medial rectus, and six weeks later a 4 mm. recession of the right lateral rectus was done. This gave good cosmetic results.



PICTURE VI.

Illustrates paralysis due to lues. Paralysis due to constitutional troubles, as lues, hemorrhage, etc., should be treated according to the etiology. This patient, age 45, was corrected by early anti-luetic treatment. Luetic cases that are allowed to go untreated for any length of time will usually require treatment and be followed later by an operation.



PICTURE VII.

Illustrates partial paralysis in group No. 5. Patient, age 15 years, suddenly saw double while at school. She developed a concomitant squint and wore a cover over one eye for two years to prevent double vision. The internist's report was negative. There being a weakness of the right external rectus, a strengthening operation was done (6 mm. tucking) which gave her binocular single vision.



PICTURE VIII.

Illustrates complete paralysis in group No. 5. Patient, age 30 years, had a flaccid paralysis. Internist's report was negative. In this type of case, we must substitute normal muscle for the paralyzed one. The outer portion of the left superior and inferior recti tendons were substituted for the paralyzed left lateral rectus, which gave good cosmetic results and binocular vision, nearly to the center of the field of lateral rotation.

To relieve tension, the upper and lower sutures should be tied together after anchoring, this will prevent one suture from tearing out and allowing vertical deviation.

#### SUMMARY

1. Start treatment when condition is first discovered, as early as eighteen months, if possible.
2. Strengthen the weak muscle, weaken the strong muscle.
3. Tucking and recession operation, suitable for all cases, especially children.
4. Operate before eight years of age if possible.
5. Complete physical examination and treat the cause.
6. A complete set for charting and diagnosing a deficiency of each ocular muscle, will be sent upon request.

## THE ETIOLOGY AND PATHOGENESIS OF ACUTE DIFFUSE GLOMERULAR NEPHRITIS\*

E. RANKIN DENNY, M.D.  
TULSA

Since the first detailed description of the early lesions of acute diffuse glomerular nephritis and the recognition of the association of streptococci in this disease by Lohlein<sup>1</sup> in 1907, knowledge concerning its etiology and pathogenesis has made remarkable progress. Volhard and Fahr<sup>2</sup> observed that one-fourth of all the nephritides associated with infection followed tonsillitis, and three-fourths of all their collected cases were associated with or followed upper naso-respiratory infections. Longcope et al<sup>3</sup> made a detailed study of the relation of infection to the onset and progress of acute and subacute diffuse glomerular nephritis. Reference will be made to this work in which it was shown the high incidence of infection of haemolytic streptococci coincident with or preceding the urinary manifestations of acute nephritis. Successful attempts to produce experimental glomerular nephritis have been made by Ophuls<sup>4</sup> who injected intravenously cultures of streptococci. Long and Finner<sup>5</sup> have also produced glomerular nephritis by intrarenal injections of tuberculin.

It would scarcely be profitable in a paper of this sort to refer in any great detail to the many studies that have been made in attempting to produce nephritis experimentally or discuss all of the experiments which have formed the basis of the various hypothesis advanced on its pathogenesis. It will suffice to say that there are three theoretical considerations of the mechanisms involved in the pathogenesis of acute diffuse glomerular nephritis.

First, Kuczynski<sup>6</sup> has suggested that the diffuse form of glomerular nephritis may in some instances be caused by the transportation of streptococci to the kidneys where they are engulfed by the cells lining the glomeruli and there set up a diffuse progressive inflammation. However, the fact that the blood and urinary cultures are sterile and the inability of pathologists to demonstrate organisms in the glomeruli is sufficient evidence to jeopardize the rationale of this idea. If this was the method by which diffuse inflammatory

lesions of the glomeruli were produced, one would expect a similar picture in all cases of sub-acute bacterial endocarditis. But the renal lesions commonly found in sub-acute bacterial endocarditis are in the form of a focal glomerular nephritis with only a relatively few glomeruli involved and without any clinical evidence of an acute renal insufficiency.

The second hypothesis is that advanced by Schridde<sup>7</sup>. It is his idea that diffuse glomerular nephritis is caused by a toxin produced by streptococci or other bacteria in a focus of infection distant from the kidney. One would conclude from most of the literature that the writers believe that the renal lesions are produced by continuous or recurring blood stream toxins formed in a focus and injuring the glomerular cells in the process of elimination. But the work of Trask and Blake<sup>8</sup> of Yale University Medical School suggests strongly that there is one other important factor necessary for the development of renal lesions. They clearly showed that a toxic substance can be isolated from the urine of patients suffering with scarlet fever, a disease in which the prototype of diffuse glomerular nephritis is manifested. This urinary substance is neutralized by human serum that blanches the rash of scarlet fever, presumably scarlet anti-toxin, but not by human serum that fails to blanch the rash. Now these cases of scarlet fever were not complicated by nephritis. In other words there was no clinical evidence of renal injury in these cases in which a toxin of streptococci scarletinae was present in the urine. This is conclusive evidence that in scarlet fever some other factor in addition to urinary toxin must be present to facilitate development of acute diffuse glomerular nephritis. Furthermore, it has long been observed that the occurrence of scarletinal glomerular nephritis does not seem to have any direct relation to the severity of the disease, very mild cases as well as severe ones being subject to it.

The mechanism of the pathogenesis of acute diffuse glomerular nephritis is most admirably explained by Longcope<sup>9</sup>. He believes that the lesions occur as a manifestation of an allergic reaction, which is to say that the renal cells must have been previously rendered abnormally susceptible to the products of bacterial growth. This is supported by his observations on the effect of intravenous injections of foreign proteins with resultant renal changes comparable to the lesions of ne-

\*Read before the Oklahoma State and Tulsa County Medical Societies.

phritis in man. Before discussing the clinical facts supporting this view it seems important to note that lesions of the glomeruli have been produced by a true tuberculin reaction.

Long and Finner<sup>5</sup> perfused the kidneys of swine with tuberculin made sensitive to this protein by having previously produced a localized lymph nodal tuberculosis, using human type tubercle bacilli. They were able to produce a diffuse inflammation of the kidneys that may be properly considered an acute glomerular nephritis. "Moreover this effect is the result of a true tuberculin reaction, as it does not occur following the perfusion of the kidney of a non-tuberculous animal with tuberculin. . . . The immediate reaction in the kidney is followed by a subsidence of acute manifestations, and absorption and proliferative organization of the exudate. Many of the glomeruli in this stage show the epithelial and endothelial stimulation and growth seen in 'acute proliferative glomerulonephritis,' or subacute glomerulonephritis. True epithelial crescents are occasionally seen. . . . When the injury is bilateral, a moderate nitrogen retention develops." Thus it is seen that one variety of acute glomerular nephritis may be produced by perfusing the kidney with a protein after having rendered the animal allergic by a previous inoculation with that protein.

In 1927, before the Association of American Physicians, Longcope, O'Brien, Hansen and Denny<sup>6</sup> reported their study of 40 cases of acute and subacute diffuse glomerular nephritis, over a period of from one to four years. It was noted that there was an occurrence of acute infections in thirty-four patients, an incidence of eighty-five per cent. Tonsillitis occurred in fifty-three per cent of the cases, while infections of the accessory nasal sinuses and respiratory tract were found in thirty-two per cent. Furthermore, in eighty-one per cent of these infections the predominant organisms recovered were haemolytic streptococci of beta and alpha types. A significant observation was the fact that the progress of the nephritis bore a direct relation to the persistence of the infection. There were twenty-seven cases that could be followed more or less continuously over a long period of time. Fourteen of these cases recovered completely from their attack of acute nephritis, and in the remainder the disease definitely progressed or terminated fatally. A study of the naso-pharynx and ton-

siller fauces of the group that had apparently recovered revealed the fact that ninety per cent were free of infection and the infecting organism originally isolated. Furthermore, with exacerbations of the disease there coexisted a recurrence of the respective infections. In the remaining group (twelve cases) in whom the disease progressed to a chronic state or terminated fatally, the infection and the infecting organism persisted in ten, an incidence of eighty-three per cent.

A study of the skin reactions to filtrates of haemolytic streptococci in acute and subacute diffuse glomerular nephritis was conducted by Hansen-Pruss, Longcope, and O'Brien<sup>7</sup>. That there is a high degree of tissue sensitivity in this group of cases there can be little doubt. Results of skin tests using high dilutions (1-500 and 1-2000) of filtrates of haemolytic streptococci isolated from foci of infection in these nephritic patients show that eighty-one per cent gave positive skin reactions. The control group of normal and patients suffering from uncomplicated acute tonsillitis showed positive skin reactions in only twenty-five and eighteen per cent respectively. In the latter group the skin sensitivity was lost following recovery from the acute tonsillitis. These skin reactions which produce a local tissue response comparable to the well known tuberculin intradermal test mean that in cases of acute and subacute diffuse glomerular nephritis there exists an allergic state, an abnormal tissue susceptibility to the products of bacterial growth.

#### SUMMARY AND CONCLUSIONS

Haemolytic streptococci are the cause of one form of acute diffuse glomerular nephritis. The significant factor determining recovery from the acute attack or progression to a chronic state is the disappearance of or persistence of the infection and the infecting organism.

The high percentage of skin reactions obtained by injecting the toxic filtrates from the haemolytic streptococci that were isolated from the foci of infection indicate that these patients are abnormally susceptible to the bacteria or the products of their growth.

There is much evidence to show that the lesions of acute and subacute diffuse glomerular nephritis are not produced by actual invasion of the kidney and that some factor other than "toxemia" must exist to facilitate development of the above mentioned type of renal disease. .

The animal experiments and clinical observations support the idea that acute and subacute diffuse glomerular nephritis develop in those whose kidney cells have been rendered hypersensitive to the haemolytic streptococci.

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For charts shown see reference No. 3.

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#### INTRAVENOUS UROGRAPHY\*

JOSEPH FULCHER, M.D.  
TULSA

There is, perhaps, no branch of medicine as well developed today as urology. Yet as a specialty it is one of the youngest. It owes its very existence to the cystoscope and X-ray. As early as 1906 Voelker and Von Lichtenberg suggested the use of a halogen compound in urography. Various solutions were tried and it was found that the halogen compound had radiopaque qualities second only to barium and bismuth. At first 25% solutions were used which caused much irritation. This was finally reduced to an isotonic solution of sodium iodide, which is 12½%. The hope was always maintained of developing a technique whereby one could give a compound intravenously, by mouth, or by rectum, which would render the urinary tract opaque. This hope has only recently been fulfilled, and intravenous urography is now definitely established. This causes a division of urography into two types—intravenous urography and retrograde urography. It is with intravenous urogra-

phy that we are chiefly concerned in this paper. It is interesting to note that intravenous urography was first done in 1923 and that Graham and Cole introduced their method of cholecystography in 1924. That the dyes used in cholecystography are phenol-tetraiodophthalein containing 60% iodine, while the compound used in intravenous urography is sodium salt of 2-oxy-5 iodopyridin-n-acetic acid<sup>1</sup>. The phthalein radical showing a predilection for gallbladder excretion, while the urea radical shows a predominant renal excretion.

Braasch states that in 1923 Rowntree, Osburn, Sutherland and Shaw of the Mayo Clinic, were the first to show that the renal pelvis and the bladder could be outlined following intravenous injections of large doses of sodium iodide. He desires that they receive full credit for the demonstration of intravenous urography<sup>1</sup>. Sodium iodide was used in 1924 in Germany by Von Lichtenberg and Rosenstein, using perirenal pneumoradiography. The results of these early American investigators in the field of intravenous urography did not warrant the continued use of sodium iodide. Rosenow, in 1929, used a compound made by combining urea with sodium iodide which he called pyelognost. Swick, a few months later, introduced the compound known as uroselectan, while on assignment to work on the service of Prof. Lichwitz in Altona, Germany, he began the work on uro-selectan. This compound was the direct offspring of selectan neutral which had been synthesized by Prof. Binz and Dr. Raeth originally to combat coccus infection on the service of Dr. Lichwitz. Having discovered that 90% of it was excreted by the kidneys, it was decided to try its radiopaque qualities on animals. It was found that .6 gm. per kilogram body weight could be intravenously administered to animals without any demonstrable ill-effects and that it was rapidly excreted by the kidneys. Dr. Swick continued his investigation on the service of Dr. Von Lichtenberg in Berlin where 700 cases were worked up and reported. The compound uro-selectan is a derivation of selectan neutral, the name of which is being changed to iopax. It is an iodopyridin combination with an iodine content of 42%. It is a yellowish, fluffy powder over 50% soluble in water, neutral in reaction and produces a light brown solution. It is a very stable compound and originally it was stated that the iodine component could not be demonstrated in the circulating blood.

\*Read before the Tulsa County Medical Society, January 26th, 1931.

Tourne and Damm have shown this to be incorrect. The free iodine radical can be shown to be present as late as ten hours after a 60 gm. dose. Stools and sputum of the patient injected show the presence of free iodine in small amounts. It can be demonstrated in the stool three to four days after the injection. It has also been demonstrated in the skin of rabbits injected intravenously.

It has been shown that 90% of the injected substance is eliminated during the first two hours through the kidneys. In parenchymal disease of the kidneys there is a decrease in excretion falling to 40% or lower. This causes the liver and intestines to have to take up the function of excretion of the drug. In such cases it is wise not to repeat the dosage. About 70% of the injected substance can be recovered from the urine by acidifying and obtaining the insoluble acid salt. This practice is in use at some of the larger clinics where they recover and use the uroselectan over again. If uroselectan is not readily excreted by the kidneys, it is slowly excreted by other organs, chief of which is the liver. During this time, it is not circulating in the blood, but is stored for the most part in the skin. It is principally through the glomerulus that uroselectan is eliminated, thus in the renal diseases of the glomerular type there is more likely to be a retention of the substance. In tubular damage one will get good pictures up to a late stage of the disease, but as a rule the more normal the kidneys the clearer the picture.

The specific gravity of the urine begins to rise soon after injection of uroselectan. It forms the basis of the combined renal function test; normally the specific gravity rises to 1.050 and 1.060 and then falls to 1.030. The highest specific gravity does not occur at the time of the maximum output of uroselectan, as one would suspect, but occurs 1 to 3 hours later when the greatest concentration of uroselectan has passed.

Urologists differ as to when intravenous urography is indicated. The question is not settled for specific conditions and it is possible that it will not be settled until we have a more efficient compound than uroselectan. Arbitrarily one can say that intravenous urography is indicated when retrograde urography cannot be performed, due to pathological or anatomical conditions in the genito-urinary tract, and retrograde urography is contra-indicated or inconvenient<sup>1</sup>. These include infants

and children, carcinomatous conditions of the bladder or other areas causing obstructions, hemorrhage, where for any reason the ureters cannot be catheterized, cases where retrograde urography does not give any definite information, transplanted ureters, questionable ruptured kidney, extrophy of the bladder, and other congenital malformations and acute diseases of the adnexa, also as a post-operative method of checking up on urological plastic surgery.

The original technique of Rountree and his co-workers required an intravenous dose of one ounce of sodium iodide in solution. Because of the free iodine and the ease of obtaining iodism, this method was dropped. The present technique, as advocated by Swick, consists in dissolving 40 gms. of uroselectan slowly in 110 c.c.s. of warm distilled water and filtering the solution. This solution is boiled twenty minutes in a double boiler or autoclaved at 15 lbs. pressure for twenty minutes. The solution is then given at body temperature by syringe or gravity method. I have seen both methods used and prefer the gravity method, taking about fifteen minutes for the solution to go into the vein. Oral and rectal administration do not give results with any of the compounds in use at present. The preparation of the patient is as for any other roentgen examination of the urinary tract. One plain flat plate of the kidneys, ureters and bladder is made before the injection. The roentgen study may be a serial, or functional study, or it may be anatomical. The serial study is the one most generally made, one plate being taken 15 minutes after completion of the injection, another at the end of forty-five minutes, and a third at the end of two hours for comparison and as a test of functional excretion.

Compression with a hickey bag is suggested and used routinely in many clinics. The bag is placed just above the symphysis pubis and pressure applied just to where the patient feels uncomfortable. The patient's bladder is emptied by catheter, or by voiding, and the bag is applied ten minutes before each exposure<sup>2</sup>. Liquids must be withheld so that the iodine compound may be excreted in a concentrated form.

Although uroselectan gives us one more method of kidney function, yet minor disturbances cannot be evaluated by this method. In making urographic interpretations one must keep in mind not only the anatomy but the pathological physiology of the genito-urinary tract, else he will be

finding defects which will prove to be pitfalls. By this method one has for comparison, by intensity, the relative function of the two kidneys, one can thus decide which appears to be the diseased side, or, which is the more involved of the two.

Von Lichtenberg and Swick reported that in 75% of their cases the intravenous route was satisfactory for diagnostic information, while the cystoscope had to be resorted to in the remaining 25%.

By the intravenous route one can study the mechanics of the ureter, one can observe peristalsis, diagnose displacement of the ureter as well as a double ureter, looping, or stricture, of same.

The best plates are usually obtained in the cases of hydronephrosis and hydroureters. In unilateral involvement the side affected usually is quite discernable from the normal side, or if one side is affected more than the other the difference is significant. In cases of urinary calculi the method shows at once whether or not complete or partial obstruction is present<sup>4</sup>. There is often an intensification of the shadow of the stone. In the case of obstruction from a stone in the ureter, there is often an intensification of the kidney shadow<sup>2</sup>.

Tuberculosis of the kidney is a much discussed question; first, in the case of retrograde urography, whether to catheterize the affected side and obtain a pyelogram or to prove the other kidney normal? With the newer technique there is still a question as to whether or not one should give uroselectan in the presence of tuberculosis on account of its high iodine content.

In intravenous urography we have a new method of urinary tract investigation. We must also acquire a new idea of roentgen interpretation, for in this method we study the urinary tract in diastole<sup>5</sup>. We can look forward to the solving of many problems, one of which is the "phantom strictures and kinks" of ureters.

In regard to kidney function alone, there are yet many problems to be solved—such as the relation of urea excretion to that of uroselectan, whether or not, under certain conditions, there is an inhibition of the excretion of uroselectan where phenolphthalein would be readily excreted.

Hyman reports over one hundred cases on the services of Mt. Siani Hospital, New York, without any unpleasant manifestations<sup>3</sup>. Hirsch<sup>14</sup> states that iodism has never

occurred. However, several authors do not hesitate to say that in the present state the process is not without danger. Caulk reported one death following its use, Kretschmer<sup>2</sup> reports one death several days following the second injection of uroselectan.

During the injecting of the solution there is commonly a feeling of warmth, flushing of the face and pain along the course of the vein in which it is injected. There may be a marked diarrhoea soon after the injection in cases with low renal function. Swick reports venous thrombosis in eight cases at the site of injection.

If the phenolsulphthalein is low, the blood urea high, and the indigo carmine excretion low, and the concentration tests of kidney function show altered kidney function, one is advancing at great danger to use this method. Where the blood urea is high and the concentrating power of the kidney poor, the method yields very poor data and is attended by danger<sup>15</sup>. Blood urea and phenolphthalein determinations are not expensive, yet they give us valuable information as to whether or not to proceed with this and like substances.

Any case bordering on uremia, as determined by adequate clinical tests, should not be subjected to intravenous urography. The use of such a large amount of iodine in the presence of tuberculosis has not yet been proved safe. In the case of hyperthyroid patients it has been shown that the drug is unsafe.

Because of the fact that the liver may be called upon to excrete the uroselectan in case there is insufficient excretion by the kidneys, one should never use this compound in cases of impaired liver function.

One may expect a good picture only when the kidney function is satisfactory<sup>3</sup>. The intensity is dependent upon the function of the kidney.

In the case of double-sided or cardio-renal conditions, the clinical results are very poor, or negligible. The intensity of the urographic shadow is directly dependent upon the kidney threshold of uroselectan. Five percent is the maximum concentration of excretion and this will not, under any ordinary circumstances, compare with 12.5% sodium iodide, which is used in retrograde pyelography. Even with normal kidneys one cannot expect the intensity of shadow which one would get with sodium iodide of 12.5% or 25% uroselectan used in retrograde pyelography.

In a damaged kidney the radiographic shadow is much less intense.

It hardly seems possible that intravenous urography should replace the older method because with the intravenous method one cannot determine the source of blood, pus, bacteria, etc. Catheter pyelography still remains the method of choice because where we need a contrast media most is in a poorly functioning kidney which cannot excrete uroselectan in sufficient concentration. We will still have to resort to the catheter in the segregation of urine.

At the meeting of the American Urological Association in June, 1930, the consensus of opinion was that in the perfection of intravenous urography a diagnostic aid has come into use the value of which cannot be estimated at the present time.

At the present we are looking forward to the use of better compounds, one of which is "skiodan," now under investigation. The newer method does offer, first, a radiopaque substance which is excreted 90% by the kidneys in a short time; second, a relative functional test; and third, a method of study of the physiological function of the urinary tract.

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417 Medical Arts Building.

#### NEPHROPATHIES

HUGH JETER, M.D., A.S.C.P.

Pathologist, University Hospital.

Assistant Professor of Clinical Pathology, Oklahoma School of Medicine.

OKLAHOMA CITY



The term "Nephropathies" is meant to include all conditions of the kidney in which there is departure from normal. During the past five years, in the Department of Pathology of the University Hospital, we have examined, both grossly and microscopically, kidneys from two hundred seventy-six patients which have come to autopsy. These cases have had complete histories, physical and laboratory examinations and in addition, we have had the opportunity to examine and become familiar with the history and treatment before death. Consequently, we have tried to correlate the clinical picture with anatomical findings. In many of the cases, the renal findings were incidental, the patients having been treated for other more serious disorders.

It has been said by an eminent pathologist, "It is a poor pathologist who cannot make his postmortem examinations agree with his clinical diagnosis." This, in our opinion, is most certainly not true in regard to nephropathies.

Another eminent pathologist has said, "that the rarest type of kidney that we might select for a museum, is the normal adult kidney." This is true, because microscopical examination reveals certain minor conditions in the kidney so constantly, that we are inclined to think of him as physiological. This view is in keeping with the clinicians, because in most of our cases, careful histories and physical examinations, including complete laboratory tests, revealed something which pointed to pathology of the kidney. We admit that it has been most difficult, and in many instances, impossible to correlate the clinical picture with the necropsy report, but believe that the one great factor which has made it so difficult is that the teaching of the clinical classification and that of the pathologists has been too widely divorced.

Consequently, we are submitting a simple classification, one which is based, as far as possible on etiology.

#### NEPHROPATHIES

Anomalies .....	3.6%
Tumors .....	1.8%
Traumatic .....	2.3%
Inflammation:	
Nephrolithiasis .....	5.9%
Hydronephrosis .....	2.5%
Pyelitis and Pyelonephrosis .....	4.8%

Bright's Disease:	
Acute .....	4.8%
Chronic .....	8.9%
Chronic with Edema (Nephrosis).....	0
Constitutional Diseases with Kidney Manifestations .....	59.5%
Normal .....	5.9%
	100. %
Mistaken Diagnosis .....	40 or 15.6%
Diagnosis Practically Correct.....	83 or 84.4%

Treatment is the aim in all cases and certainly, as a general rule, is most scientifically promoted if directed toward the etiology. Necropsies should be performed to learn the processes of disease which have occurred before death and simplify our study rather than to complicate matters by many pathological terms.

Almost as many different classifications have been submitted as have been authors who have written upon the subject, so it is not our purpose to submit still another classification, but instead, to mention the different types which will review briefly, some of the recent conceptions as found in literature and also review our personal conception resulting from these cases of postmortem examinations. The types of nephropathies are as follows:

*Anomalies*<sup>1</sup>: Of these, we have had 3 or .6% fused or horseshoe kidneys; 2 or .4% congenital absence of one kidney; 2 or .4% with one vestigial, non-functioning kidney; 3 or .6% congenital polycystic; several lobulated kidneys; and an uncertain number in which there appeared to be slight anomalies of ureters, pelvis, or blood supply. We dismiss these briefly because, with the exception of one of these, a congenital polycystic kidney, there was no clinical evidence of dysfunction resulting from the anomalous condition.

*Tumors*<sup>2</sup>: 5 or 1.8% had neoplasms, two of which, were primary carcinomata, two metastatic sarcomata, and one, a lipoma of the capsule. Only one of these gave definite clinical or roentgenological evidence for sufficient diagnosis.

*Traumatic*<sup>3</sup>: 6 or 2.1% of all the cases which came to autopsy showed traumatic injury of one kidney and were diagnosed

as such clinically. None of these showed injury of both kidneys. In one case, a man had jumped from the fifth story of a downtown building and fallen on his head, the right kidney was broken entirely in two pieces. It is interesting to note that there was no external evidence whatever of any direct trauma in the region of the kidney.

*Inflammation or True Nephritis*<sup>4</sup>: These we have divided into two general groups:

*Nephrolithiasis*: Of which 16 or 5.8% of the two hundred seventy-six cases showed calculi in the pelvis. This class represents the greatest clinical and pathological disagreement of any class of abnormalities of the kidney. There was no diagnosis of calculi made in ten of these cases. In other words, the diagnosis was not made in 62% of the cases of nephrolithiasis.

*Obstruction of The Ureter*: Of these cases, there were seven of hydronephroses and thirteen of pyelitis, making a total of twenty or 7.1% in which there was dilatation of the pelvis with more or less inflammation of the kidney *per se*. Of these twenty cases only eight were diagnosed as such, or 60% in which the diagnosis was not suspected.

*Bright's Disease or Occult Nephropathies*<sup>5</sup>: This group is meant to include all of those types, the cause of which, is obscure or difficult to understand. These are usually called nephritis and sometimes called nephrosis. The term nephritis is not in the true sense representative of this condition because the changes in the kidney are probably more often degenerative than strictly inflammatory. This is the group of nephropathies which has given rise to most of the confusion in connection with classification. One text book on pathology mentions fifty different types of Bright's Disease. It is impossible for a student or a practicing physician to refer to even two text books which give the same classification. We have, therefore, found it most convenient to make use of a very simple classification as follows:

Constitutional Symptoms	Acute	Chronic	Chronic with Edema (Nephrosis)
Edema	Always present Considerable, especially of face	Mild or negligible Slight or none	Mild Considerable
Blood Pressure	Usually normal	Usually high	Normal
Urine Output	Diminished	Increased	Unimportant
Specific Gravity	High	Low and a tendency to be fixed	High
Albuminuria	Heavy	Slight or normal	Heavy
Casts	Many hyaline and granular	Granular or none	Usually granular
Red Blood Cells	Usually many	None	None
White Blood Cells	Often a few	None	Unimportant
P.S.P.	Unimportant	Decreased output of dye	Decreased
B.M.R.	Unimportant	Unimportant	Increased globulin
N.P.N.	May or may not be increased	High in terminal stage	Increased cholesterol Decreased serum protein

*Acute Nephritis:* Of course this includes a large range of conditions which is somewhat different both clinically and in pathological findings, but briefly characterized by constitutional symptoms, edema, puffiness of the face, especially, diminution in urinary output, heavy albuminuria, high specific gravity, normal or increase in blood pressure depending upon the stage, usually many casts, usually red blood cells, and often, a few white cells. The nitrogenous salts of the blood may or may not be increased, but are usually so in severe cases or during the advanced stages. Functional tests, such as the phenolsulphonephthalein test and the concentration tests usually add no important information.

At autopsy the kidneys are heavier than normal, the capsule strips easily and the surface is injected, red and often granular. The cortex is thick, poorly differentiated from the medulla and its cut surface bulges. Microscopic examination shows a great variety of lesions and is usually classified by pathologists according to the predominating lesion. We are frank to admit, that it is often very difficult to decide exactly which portion of the kidney has been most severely damaged, whether it is Bowman's capsule, the glomeruli, the tubules or other portions. However, it is not difficult to determine whether the process has been acute or chronic.

Of the two hundred seventy-six cases, only thirteen or 4.8% fell in this group. Of these the diagnosis was partially correct in all and entirely correct in seven or 50%. The remaining 41% was incorrect in that they had been called chronic, when at autopsy, they appeared to be acute.

*Chronic Nephritis:* This includes a very large range of cases in which there are few constitutional symptoms, little or no edema, a tendency to increase in the output of urine, sometimes but not always casts, reversal of the day and night ratio, small amount of albuminuria or no albuminuria, low specific gravity and a tendency to fixation of the specific gravity. Blood pressure is usually high in advanced cases. The phenolsulphonephthalein test usually shows a decreased output of dye. The nitrogenous products of the blood are constantly high in terminal stages.

At autopsy we find a small kidney, an adherent capsule, granular surface, thin cortex, and an increase in pelvic fat. Microscopic examination shows a very wide range of conditions, including degeneration and fibrosis. Usually there are many

scars, fibrosis of the glomeruli, and in the small white or contracted kidney, a pre-dominance of interstitial type tissue. We believe that the interstitial type nephritis is an advanced stage in which there has been an unusual amount of sclerosis in the process of repair of previous damage, while again, we have found these conditions extremely difficult to classify because there is usually more or less damage to the various portions of the kidney and the difficulty arises in determining which is the most important.

Of the two hundred seventy-six cases examined, twenty-three fell into this group. With the exception of seven, all were diagnosed as such, making a correct diagnosis of 71 per cent.

*Chronic Nephritis With Edema (Nephrosis):* This includes a peculiar type of nephropathy in which there is a very definite clinical syndrome characterized by an insidious onset, marked edema, decreased basal metabolic rate, marked albuminuria, decreased blood proteins with relative increase in globulin, reversing the usual albumen: globulin ratio, hypercholesterolemia and good phenolsulphonephthalein excretion. No increase in non protein nitrogen of the blood; casts, and double refractile lipid droplets in the urine. Blood pressure normal. At autopsy, the pathology consists of degenerative lesions which are in keeping with the above mentioned lesions of chronic nephritis.

The condition of both children and adults was described by Munk, Volhard, Fahr, Epstein and others and was called nephrosis. By some, it has been called Epstein's nephrosis. Christian has recently summarized all of the cases of nephrosis with postmortem observations. There were eighteen such cases consistent with the diagnosis.

The term "nephrosis" as suggested by Muller twenty-five years ago, has recently been discarded by many foremost authorities on diseases of the kidney. Christian says "there seems to me to be no justification for regarding nephrosis as any other than a variety of kidney diseases, a form of chronic nephritis or Bright's Disease. While I can offer no objection to such a clinical term of nephrosis, I can see no advantage of it over the term chronic nephritis with edema." Doubtless the term is often used incorrectly in connection with cases which do not have the definite syndrome which accompanies chronic nephritis with edema.

None of the two hundred seventy-six cases here reported, and we can add, none of the five hundred cases which we have examined at autopsy have fallen into this group clinically.

*Constitutional Diseases*: Richard Bright, Guy's Hospital, 1827, in his "Reports of medical cases," says, "There are evidences of organic changes which occasionally present themselves in the structure of the kidney and which, whether they are to be considered as the cause of the dropsical effusion or as a consequence of some other disease, could not be unimportant. We believe that this should also be the view point in nephritis, that is, to say, "the recent and more reasonable view point supported by newer experimental technique is that the clinical condition described in nephritis is a general or constitutional disease." The important damage is done in other tissues, especially liver, central nervous system, sympathetic and endothelial, and that nephritis is no more strictly renal disease than scarlet fever or syphilis are diseases of the skin."

#### CONSTITUTIONAL DISEASES WITH NEPHROPATHIES

Malignancies	32	Pellagra	3
Passive Congestion	24	Endocarditis	2
Peritonitis	18	Empyema	2
Misc. Acute Infections	17	Morphinism	1
Pneumonia	14	Wood Alchol Poisoning	1
Tuberculosis	13	Luminal Poisoning	1
Arteriosclerosis	12	Leukemia	1
Infarcts	11	Eclampsia	1
Senility	9	Dysentery	1
Meningitis	4	Encephalitis	1
Septicopyemia	4	Acute Cholecystitis	1
Osteomyelitis			

This view is supported by the fact, firstly, that the picture of nephritis has not been produced experimentally by renal damage, and secondly, that bacterial toxins and chemicals which produce nephritis experimentally are tissue poisons and do general damage as well as local.

*Normal*: Of the two hundred seventy-six cases, sixteen or 5.9% showed no definite evidence of any pathology. Of these, eight were less than one year of age, five less than two years, and one each of eight, sixteen, and thirty-eight years. It may be of interest to note that the latter who was thirty-eight years of age, met a sudden accidental death.

#### CONCLUSION

1. Nearly all adult kidneys show pathology at autopsy.
2. Nephrolithiasis, hydronephrosis, and pyelitis are frequently unsuspected, even in hospital cases.

3. Bright's Disease is not a local disease, but instead, in most of the diseases, is the consequence of some constitutional disorder.

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#### SIGNIFICANCE OF LABORATORY TESTS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS.

MARQUE O. NELSON, M.S., M.D.  
TULSA

The interpretation of laboratory tests in syphilis covers a field too extensive to be gone over thoroughly in a short time. It is my intention therefore merely to touch a few points that may be of general interest. The tests to be considered are: the darkfield, the Wassermann and Kahn and the spinal fluid cell count and colloidal tests, especially the colloidal benzoin.

These tests are in such common use that any further discussion of them may seem useless repetition. Ideally, their interpretation should be a simple matter: a positive darkfield or positive Wassermann should indicate unquestionable syphilis; a negative darkfield or negative Wassermann should eliminate it finally as a diagnostic possibility. But in fact it is not altogether so simple: the positive Wassermann may not mean syphilis; the single negative Wassermann or negative darkfield is of no value whatever in ruling it out.

In every case in which these tests are to be evaluated it is important and necessary to make a thorough clinical examination. This includes a careful history, taken with emphasis on the points likely to bring hidden syphilis to view and a close scrutiny

of the patient's person for signs of syphilis. It is necessary to look carefully at the mucous membranes of the mouth and throat and at the skin of the entire body, especially the borders of the scalp, the genitalia, the perianal region and the palms and soles for active lesions or scars of syphilis. The presence of enlarged lymph nodes must be sought for; the eyes must be examined for keratitis, the nasal septum for perforation, the upper central incisors for Hutchinsonian pegging, the abdomen for tumors, especially gumma of the liver and the tibiae for periostitis. Signs characteristic of late neurosyphilis also must be looked for. No examination of a patient for syphilis is complete without such a careful going over. Laboratory tests can not be accepted as final unless supported by clinical evidence or until repeated checking has reasonably proved their correctness. These points have been made so often in the past that I would feel like offering an apology for bringing them up again if I were not aware of the persistent human tendency in most of us to consider tests and diseases instead of individuals.

Since the clinical examination is indispensable to proper interpretation of the tests for syphilis, it is apparent that the responsibility for the interpretation rests with the clinician. The laboratory technician as accurately as possible performs the test and reports its outcome but he should not be required to make decisions as to the meaning of the test for the patient. That remains the prerogative of the clinician and he should not allow himself to fall into the easily formed habit of depending on the laboratory man in doubtful cases.

Cases are largely individual and as well in syphilis as in other conditions fixed rules that will invariably apply cannot be laid down. In different combinations with each other and with the clinical findings tests for syphilis may have a different significance. For this reason it would probably be more accurate, in illustrating the interpretation of these tests, to consider hypothetical cases rather than to make rules.

Before going ahead with these, it would be well here to review one or two details about Kolmer, Wassermann and colloidal benzoin reports. The Kolmer technic of doing the Wassermann is more dependable than any other and is now in general use. Tubes are set up in series of five. Reactions are reported from 0 to 4 in each tube,

the negative reaction being reported 00000 or ----- and the most strongly positive reaction 44444. The colloidal benzoin test is used in place of the colloidal gold. It has the advantage of being simpler and more dependable. In addition it has a rather special value in neurosyphilis. Fifteen tubes are set up and the reaction in each is reported in degrees from 0 to 3. Precipitation in the first four tubes is considered a "first zone" reaction and is the only reaction of practical significance.

As a first case for example, imagine that a man of thirty-five has a small slightly indurated lesion on the penis. He says it is just a scratch but that it has been there two weeks and does not seem to be going away. Careful search for other lesions of syphilis reveals nothing. A darkfield test is done without finding spirocheta pallida. Is the lesion syphilitic? From this single test it is impossible to draw a conclusion. A negative darkfield never means anything except that spirocheta pallida cannot be found in the particular specimen of serum used for the test. A second or third darkfield may be positive and should be done; in fact it is a good plan to make two or three slides routinely at each examination. The lesion should not be interfered with in any way until repeated darkfield tests have been made several days apart. Suppose that the blood Wassermann is taken and is found to be negative. With this finding and the negative darkfield it might be a temptation to dismiss the patient as non-syphilitic. But the investigation should not be stopped here. The blood Wassermann is untrustworthy and is of much less diagnostic value than the darkfield during the early weeks of the primary phase of the disease; in fact it is negative about two-thirds of the time. Nevertheless it should be taken, for it might be strongly positive even as early as this. With no evidence, then, to indicate the presence in this case of syphilis, what is to be done next? Ideally it would be best to repeat the darkfield daily or every other day for about a week, the patient meanwhile using saline wet dressings on the lesion. If it is impracticable to do several darkfields, at least one more should be done several days after the first. Suppose the second darkfield shows spirochetes. It would be correct now to go ahead with treatment for syphilis, unless there should be any reason to doubt that the spirochetes actually are those of syphilis. If it cannot be determined positively that the spirochetes are those of syphilis it

would be better to wait for the blood Wassermann to become positive before starting treatment. Suppose, instead of being positive, that repeated darkfields and a blood Wassermann are negative. Would it be proper in such a case to ignore the tests and go ahead with treatment for syphilis if the lesion is clinically typical of a syphilitic chancre? Treatment never should be given on such grounds alone. It is impossible even for the most experienced syphilologist to be sure merely by inspection that a chancre is syphilitic, unless other lesions of early syphilis can be demonstrated on the body. Even then it is better to make sure by getting a blood Wasserman test, for it is during the secondary stage of the infection that the Wassermann reaches its highest dependability, being strongly positive in nearly 100% of cases. If the Wassermann should be negative in spite of suspicious cutaneous lesions it would be well to repeat it, possibly in a different laboratory as a check. Suppose our patient's Wassermann becomes strongly positive a week or ten days after the first test is taken and that he is given eight or ten weeks of treatment. Another Wassermann is done at the end of that time and is negative. This test is not in any way an indication that the patient is cured and that he can be dismissed. He *may* be rid of the infection if he is unusually lucky but the Wassermann is no index of whether he is or not. Too much confidence must not be placed in the Wassermann at this stage, although its reversal to negative is a favorable sign. It is time, rather, to give our attention to the nervous system by testing the spinal fluid. Perhaps it may seem a little early to be bothering about this, for neurosyphilis is generally thought of as a late complication occurring after the disease has gone untreated for years. It is true that neurosyphilis as the neurologist sees it *is* a late manifestation. It *is* true that neurosyphilis usually is *not discovered or given attention* until years have gone by since the onset of the infection or until serious damage to the nervous system manifests itself in clinical signs and symptoms that we can see. The reason for this is that spinal fluid is not often enough tested in the early phases of syphilis. Many a hopeless human wreck, suffering the terrible pains of tabes, or the anguish of gastric crises, or groping in the perpetual dark of blindness might still be as active and capable as formerly if his spinal fluid had been examined early in the course of his infection. For it is a fact that these late rav-

ages of the disease can be prevented by proper treatment given in the early years. It is grossly negligent to wait for symptoms to appear. Involvement of the nervous system by syphilis occurs early in the course of the disease or not at all. Within the first few months there will be some indication in the spinal fluid of central nervous system involvement in the great majority of those who eventually have it. The spinal fluid should be tested early, and in every case. No weak arguments should be accepted in refusal. It is the physician's responsibility to safeguard the patient's future in spite of objections. Suppose the report of the spinal fluid test in this case to be: "Wassermann negative." From this finding alone it would be impossible to tell whether or not the patient's nervous system has escaped infection. It is necessary to have a cell count, which, to be accurate, must be taken within an hour or so after the fluid has been drawn. Suppose the cell count had been made and reported as 10 per cu. mm. Such a count would mean early neurosyphilis, in spite of the negative Wassermann. Any count above 5 at this stage is to be looked on with suspicion and 8 or 10 means definite infection. The patient is given ordinary treatment for six or eight weeks (no special type of treatment is necessary here, for in most cases these mild early infections of the nervous system clear up under treatment with arsphenamine and mercury). At the end of this time the blood Wassermann is strongly positive and the spinal fluid shows: Wassermann 444311 (anticomplementary) cells 325, colloidal benzoin 233,332,210,000,00, i. e., a first zone reaction. (These and the following tests are taken from an actual case). *The anticomplementary spinal fluid Wassermann always is equivalent to a strongly positive one.* Anticomplementary blood tests either may mean syphilis or be of no significance. The cell count of 325 and the first zone benzoin, taken separately, might suggest septic meningitis and paresis but in this particular combination probably mean very active meningeal neurosyphilis. Ordinary treatment does not seem to be accomplishing much in this case. Suppose it is now combined with intraspinal treatments and that after a course of these followed by mild treatment with mercury or bismuth given periodically for five or six months, the tests are taken again. This time the blood Wassermann is negative and the spinal fluid surprises us with the following: Wassermann negative, cells 4, colloidal benzoin 121 003 331 000 000. So

far as the Wassermann and cell count indicate, the man is cured and can be dismissed. In order to be as sure as possible of this, the patient is given a course of arsphenamine and mercury and in six weeks his spinal fluid is re-examined. It shows: Wassermann negative, cells 127, colloidal benzoin 011 003 331 000 000. This return of the high cell count indicates that the infection is of the stubborn relapsing type. The value of the colloidal benzoin also is demonstrated. The failure of the first zone reaction to disappear after other factors of the spinal fluid test have returned to normal is a warning that the infection may not have subsided completely and that the fluid must be checked again. Thus far, ordinary treatment measures have failed and resort must be had to malaria. The patient is given a course of chills and after four months the spinal fluid findings are: Wassermann 44431, cells 134, benzoin 123 113 333 100 000, a further relapse. By continuing fever and other treatment we are able to reduce this in a period of two years to: Wassermann 321—, cells 4, benzoin 000 033 333 320 000. For the first time, the reaction has disappeared from the first zone of the benzoin. Taken with the clinical findings, which are favorable, the laboratory tests probably indicate that the patient is at last on the road to health. Notwithstanding this, it will be necessary to be on the lookout for relapse and to recheck the patient's spinal fluid periodically for many years.

Now presume another case. A woman of 28 has not been feeling well for two years. She is under weight and feels weak. A routine blood Wassermann was done in her case a year ago and found to be strongly positive. She has been given three courses of treatment with arsphenamine without improvement in health. A careful examination for clinical signs of syphilis is negative. A blood Wassermann is done and is reported: "4 plus." The spinal fluid shows: Kolmer 44441, cells 1, colloidal benzoin 001 033 200 000 000. The persistent and very strongly positive Kolmer test in itself suggests resistant neurosyphilis, especially when the cell count is normal. The outlook might be better for her if the cell count were high with this Wassermann. Notice the very slight suspicion of a reaction in the first zone of the colloidal benzoin—it may mean impending paresis. Ordinary treatment measures must not be dallied with. There are as yet no clinical signs of damage to the nervous system and we have our best chance now

to prevent it. After a course of intraspinal treatments and a rest period of a few months there is no real change in the spinal fluid. Fever therapy must be used and the patient is inoculated with malaria. Four months later she has gained 25 pounds in weight and feels like a different woman. Her spinal fluid shows improvement: Wassermann 433 --, cells 2, benzoin 000 003 320 000 000. Again, after a rest period of eight months it shows: Wassermann 41---, cells 2, benzoin negative. Does this spinal Wassermann mean activity still in the nervous system? It is impossible to be sure but we suspect that it does. The patient is now given mild treatment and in a year both the blood and spinal tests are negative. But that does not mean the patient is cured. On rechecking in a year, the blood Wassermann is negative. The spinal fluid test shows: Wassermann 31---, benzoin negative. Does this spinal fluid Wassermann indicate a return of the active disease process? Very probably not. It may have shown the same reaction if it had been taken the day after the previous one a year ago. *Such fluctuations are every day occurrences. It is the series of tests done over a long period of time that guides us in the treatment of syphilis. Single tests often have very little value.* After a year of treatment with mercury or bismuth the spinal fluid is completely negative and remains so consistently for three years. Now the patient can be given reasonable assurance that she is well, but should be told to return for check-up in two or three years to be sure of it.

A man of 40 in good general health recently has been troubled by transient diplopia and has noticed one pupil larger than the other. Examination of the eyes shows the left pupil to be larger than the right and it does not react to light. The right pupil is normal. There are no other physical signs of disease. A blood Wassermann is done and is negative. On being repeated it is reported negative again. But syphilis is not yet ruled out. A spinal fluid test is done and shows: Wassermann (Kolmer) 4444—, cells 25, benzoin 002 213 333 331 000. It may seem a little strange that the spinal tests can indicate an active infection in the nervous system while the blood Wassermann is negative, but this combination of the two tests is very ordinary. In fact about 40% of patients having positive spinal fluid tests have consistently negative blood Wassermanns. At that rate, depending on blood Wassermanns alone, 40% of cases of ac-

tive neurosyphilis would be missed completely. The negative blood Wassermann means little or nothing in neurosyphilis. What is the significance of the spinal fluid test in this case? The strongly positive Kolmer with the moderate cell count and definite first zone reaction in the colloidal benzoin means resistant parenchymatous neurosyphilis with a suggestion of future paresis. Suppose the patient is treated with malaria and that after two years his tests are normal except for the spinal fluid Wassermann which is 2----. A spinal fluid Wassermann as weakly positive as this, without other changes in the fluid seldom occurs in the presence of active *late* neurosyphilis (except in the relapsing meningeal type) and usually indicates a practical subsidence of the infection.

In another case a woman of 30 with moderate dysmenorrhea has a general examination. A blood Wassermann, done routinely, is positive. There is no history of syphilis and no clinical sign even suggesting it. Her husband's Wassermann is negative. Has the woman syphilis? No attempt at interpretation of this test can be made without further investigation. Another blood Wassermann is done and the spinal fluid tested. The second Wassermann also is positive, the spinal fluid negative. Is there evidence enough to assume that the woman has syphilis? Something depends on how strongly positive the tests are. If the Kolmer shows 44 each time, (the first 2 tubes are of most practical importance in the Kolmer on the blood) it is probable that syphilis is present, but before going ahead with treatment, Kahn tests should be run as a check. If both Kahn tests are positive it can be assumed the woman has syphilis without further hesitation. Even if the Kahn tests had been negative it would have been proper to go ahead with treatment for syphilis. *Repeated strongly positive Kolmer Wassermanns practically always mean syphilis.* Suppose the Wassermanns had shown 32 and 41 (i. e. anything less than 44) on successive days. In such a case it would have been best to run a series of five or six tests, either with or without a preceding provocative injection of arsphenamine. Suppose the series had run: 32, 41, 44, 43, 42, 4—. These repeated strongly positive tests are good presumptive evidence of syphilis in themselves and justify giving treatment. If they had been 32, 41, 23, 21 negative, 2—, it might have been better to wait six months and to recheck them before advising treatment.

What if the first test had been 1—, "very weakly positive?" With the complete absence of any signs or symptoms or history of infection should any attention be paid to this Wassermann? A positive Wassermann no matter how weak, never should be passed by as insignificant. A thorough syphilologic investigation including history and physical examination, spinal fluid test and Wassermann repeats, should be made. With the first Wassermann weakly positive, a series of tests might run 1—, 31, 42, 43, 21, 42,—the strongly positive tests making their appearance only after repeated checking.

In the last case a man comes to us with a lesion about the nose and upper lip that has been present 3 weeks. There is no history of syphilis and the blood Wassermann is negative. Has the patient syphilis? It should not be hard to determine this point by inspection alone, for as a rule the cutaneous lesions of syphilis (except the chancre) have an appearance so characteristic that they are readily recognized without the aid of serologic tests. Treatment for syphilis can be given without hesitation on no other grounds than the clinical examination even when the Wassermann is negative.

Not only in cutaneous syphilis but in all phases of the disease a careful clinical examination is of the highest value. Experience with syphilis confers a detective sense that enables the examiner to spot the lesions of the disease in most of its many forms and to make diagnoses that would be missed completely through dependence on laboratory tests alone.

The few cases recounted above do not explain everything there is to know about the interpretation of serologic tests for syphilis. They are used merely to illustrate the value of these tests as signals in diagnosis and as guides at different steps in treatment.

A short summary of some of the main points is as follows: darkfield tests on genital lesions practically always mean syphilis when positive. They mean very little when negative. Positive darkfields on lesions in the mouth must be cautiously interpreted. Blood Wassermann tests (done by Kolmer technique) when consistently strongly positive mean syphilis except in very rare cases. False positives and non-specific positives should be very infrequent. Anticomplementary blood Wassermanns may indicate syphilis or be of no significance. Anticomplementary

spinal fluid Wassermanns are equivalent to strongly positive ones. Weakly positive Wassermanns may mean syphilis and always *should be thoroughly investigated*. They must never be regarded lightly. A single negative blood Wassermann test means nothing in ruling out a syphilitic infection. *A fairly large percentage of all cases of syphilis have consistently negative blood Wassermanns.* A thorough syphilitic investigation should be made in every doubtful case and is of as much value in itself as the laboratory tests.

Kahn and other precipitation tests seem to be slightly less dependable than the Wassermann, although in certain cases they appear to be more accurate. It is well to run both whenever possible but to depend mainly on the Wassermann.

The cell count on the spinal fluid is of great importance. It may be the only indication that syphilis is present. A high cell count usually indicates meningeal involvement mainly and is rather of good than of bad import. A fluctuating high cell count occurs in resistant neurosyphilis.

The colloidal tests are used to discover resistant and especially paretic tendency in neurosyphilis. The first zone reaction is the only reliable one.

All tests should be repeated to be of greatest value.

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## HEREDITARY SYPHILIS

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CARROLL M. POUNDERS, M.D.  
OKLAHOMA CITY

Syphilis as a disease comprises such a wide variety of clinical manifestations that it is practical to study only certain phases of it at a time. I am presenting a case of hereditary syphilis in order to point out two or three things of interest.

L. M., white female 10 years of age. Admitted to the University Hospital May 31st, 1930. Complaint—deformity of the legs.

*Family History:* Father is living. Had a chancre 16 years ago and took a few antiluetic treatments. Mother living and well. Has had no miscarriages. One brother 13 years old and three sisters, ages 7 years, 3 years and 10 months respectively.

*Past History:* Was second child, normal delivery, full term, breast fed. During early childhood had whooping cough, measles and influenza. Past history other-

wise unimportant except that the child has never possessed a good appetite.

Present trouble, according to father, began about one year before admission. At that time it was noticed that the tibiae were becoming bowed forwards and apparently thickening. The condition caused no pain, but steadily became more noticeable. The physical examination showed nothing of interest except a marked depression of the bridge of the nose and a distinct forward and inward bowing of the tibiae. The bones were thickened and their anterior surfaces rather uneven. Laboratory reports: hemoglobin 65%, total erythrocyte count 3,930,000, total leucocyte count 7,800. Differential: polymorphonuclear neutrophilis 48%, transitionals 4%, small lymphocytes 34%, large lymphocytes 14%. The blood Wassermann was positive. The urine was a brownish color, acid, s. g. 1.023, heavy albumen, trace of indican with a moderate number of granular casts. The phenolsulphonephthalein output was 75% for the first two hours. The daily volume of urine was small—on one occasion being recorded as 105 cc. The blood non-protein nitrogen was 36 mgns, the blood urea 10 mgns, and the creatinin 3.2 mgns. The blood pressure was systolic 110 and diastolic 68.

We have here two bone conditions which represent respectively a very early and a very late symptom of hereditary syphilis. One of the earliest and most common signs of infantile syphilis is the rhinitis or snuffles. It is present in at least three-fourths of the cases. There may be a mild coryza but it is generally severe enough that the noisy breathing can be heard for some distance. A variable amount of discharge is present which may be quite profuse and blood stained. At times deep ulceration of the mucous membrane takes place which may involve the cartilage and bone. This allows the bridge of the nose to fall in resulting in the so called "saddle nose" which we see here—a permanent mark of the disease.

The condition for which the child really came to the hospital is a later manifestation—the chronic, bilateral, hyperplastic periostitis of the tibiae. It does not generally appear until the fifth year or later. It comes on insidiously and with little or no pain! There is a fairly regular symmetrical enlargement throughout the entire length of the tibia. This produces the anterior bowing of the tibia or so called saber shin which is generally curved in the opposite direction to that seen in rickets.

Another interesting fact is that the child had a kidney condition. Now after diagnosing a nephritis it is necessary to obtain certain information before treatment can be rationally attempted. This is true regardless of the cause of the trouble. As a matter of fact it seems rather useless to try to remember any of the numerous and often complicated classifications of nephritis and to try to apply such classifications in actual practice. We need only to learn the parts of the organ involved and to get some idea of the extent of injury with the amount of disturbed function that results. We get this information in a more or less direct manner by examination of the urine and by making the various function tests. We obtain certain indirect information by observing such things as the blood pressure, the eye grounds, edema and uremic convulsions.

Now let us consider some of the findings in this case. There was a diminution of output. The liquid portion of the urine comes from the deproteinized blood plasma which passes through the glomerular filter. A lessened output means a lessened amount of plasma coming into contact with the filter. This may be due either to an inflammatory swelling of the glomeruli or to some condition in the tissues which holds the plasma away from the kidneys. The next thing noted is albumen. Albuminuria is an accompaniment of all types of nephritis and does not necessarily mean serious disturbance. It means that some of the blood protein is allowed to pass through the filter. However, large amounts of albumen are rather characteristic of nephrosis. Casts have about the same significance as albumen but indicate a little more serious injury. Red blood cell casts have the same meaning as does the presence of red blood cells. The persistent absence of red blood cells is quite significant. Their presence in cases of nephritis always means involvement of the glomeruli. They always come from the ruptured capillaries here. So we can conclude that since the urine was repeatedly and persistently free from any red blood cells that the glomeruli were not seriously injured.

Now let us see what information we get from the functional tests. In the blood chemistry the non-protein nitrogen, creatinin, etc., were practically normal in amount. This means there is not sufficient injury to impair the kidneys' function in eliminating these waste products. The phenolsulphonephthalein elimination is very good and this too indicates that the

functional capacity of the kidneys is not impaired. The blood pressure is not elevated and this is evidence against there being any faulty elimination. Due to the large amount of albumen present and the granular casts ones first impression might be that there was a serious kidney involvement and might therefore hesitate to go on with antiluetic treatment. A closer analysis, however, reveals no serious disturbance of function. One should not, in such a case, fear to administer any of the drugs ordinarily employed against syphilis with the possible exception of mercury. As a matter of fact, the urine showed a tendency to clear up under treatment in this case.

#### SUMMARY

1. A case of hereditary syphilis is presented which shows bony changes characteristic of both the earliest infantile lesions and the later childhood lesions.
  2. There is a complicating kidney condition which shows rather marked urinary findings. In spite of such findings the kidneys are proven to have very little disturbed function. The urine tends to clear up under antiluetic treatment.
  3. A plea is made for more attention to the actual amount of kidney injury and disturbed function rather than attempting to classify each case of nephritis according to some particular author or text book.
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#### DIAGNOSIS AND TREATMENT OF NON-SPECIFIC PROSTATITIS\*

S. D. NEELY, B.S., M.D.  
MUSKOGEE

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There is already enough material written about this subject to fill a good sized library. In glancing thru this material tho, the reader can not escape the opinion that known medical facts are few, and that theory predominates. In speaking of this subject tonight I will attempt to confine myself to those cases in which the gonococcus and tubercle bacillus are not found.

Just a word about anatomy and etiology. The prostate, a musculo-glandular organ lying between the outlet of the urinary bladder and the triangular ligament, is one of the most important of the accessory genital glands. The ratio of muscular and other supportive tissue to glandular tissue is one to five. It has within its confines

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and coursing thru its substance the prostatic urethra and the ejaculatory ducts. It is a five lobed racemose gland, and in the adult its bulk is represented by the two lateral lobes. The anterior and posterior lobes at this time are rudimentary, the mesial lobe, lying on the floor of the urethra, causes trouble at times by enlargement or fibrosis resulting in obstruction to the urinary outflow. The prostate is a highly vascular gland, deriving its blood supply from the middle hemorrhoidal, the inferior vesical, and the internal pudic arteries. This gland is intimately associated with the two seminal vesicles whose ducts open on the floor of the prostatic urethra on either side of the veru-montanum. Strange to say this is one of the great weaknesses in the make up of man, the designer evidently not anticipating the countless trouble infection could produce here. It is known that the prostatic and seminal vesicular ducts have no muscular tissue with which to empty themselves. Once an infection gains the posterior urethra it tends to travel up these ducts, hunting the path of least resistance, being hemmed in by the vesical sphincter posteriorly and the sphincter urethra anteriorly. Another important point is the fact that the mucosa of the posterior urethra is not supplied with mucosal glands found in the anterior urethra. The gland tissue here can fittingly be compared with a large river and its tributaries. The small stagnant ponds, sloughs, and bayous at the head of the system, these draining into the small creeks, which grow larger and terminate in the larger rivers represented by the prostatic ducts. Once an infection reaches the stagnant ponds or sloughs at the head of the system it either becomes quiescent, awaiting its host's lowered resistance or is absorbed.

The original etiological factor is hard to prove. Infection, it is admitted can take place either thru the vascular system, or ascending up the ducts. Much discussion centers around the gonococcus, the fact that this organism is the original offender. In time it is either annihilated or becomes quiescent and nested, it is followed tho by the camp followers, the colon bacillus, the streptococcus, or the staphylococcus. Pelouze seems to thinks this a likely presumption. Shuler says positively not, and cites the fact that at the Mayo Clinic the percentgae of patients having prostatitis giving a history of gonorrhreal infection previously having dropped from 76% in 1923 to 30% in 1929. Be this as it may it is

not for me to say what part the original gonorrhreal infection plays and in what percentage it is the original offender. Nickel has done some very important work recently regarding the bacteriology of prostatitis, and the selective localization produced experimentally. He had two points in mind: "1. To determine the dominant flora of the prostate gland and seminal vesicles associated with disease. 2. To determine the pathogenicity and elective localization in animals." Out of 3500 cultures taken 2380 were positive, selecting patients who had some ailment which might be attributable to prostatitis. He has shown that many strains of organisms isolated from the prostatic secretion of man not only produced lesions in rabbits similar to those in patients, but also localized in and were recovered from tissues of the rabbits analogous to that of the prostate gland and seminal vesicles in man. He also emphasizes the fact that in some instances the prostate and vesicles are secondary foci, and after failure of adequate treatment of the prostate to improve the patient's condition while other foci were present, upon their removal (evidently primary) the patient's condition improved markedly.

*Diagnosis:* In the average case of symptomatic prostatitis the symptoms will point to the local trouble. They may be and generally are vague, as rheumatic pains, general malaise, sleeplessness, melancholia, headaches, and any other symptom which the organism would have from toxicity. Local symptoms are low lumbar, perineal, or sacral pain, difficult, painful or frequent urination, loss of vigor, frank impotence, penile discharge which may vary from the accustomed morning drop to a frank discharge, itching or tingling sensation along the course of the urethra, premature ejaculation, or apparent sterility. The final diagnosis must be made with the microscope and index finger. The secretion must be secured and examined, preferably fresh. Much information can be gained from a well trained finger. With the patient in the preferred position, Simm's knee chest, or stooping, your index finger, well lubricated, is passed into the rectum, noting the rectal tonus. The prostate is felt some one and one-half inches inside the internal sphincter, and should be well palpated, noting its contour and consistence. It should be the size of a horse chesnut, and about the consistence of contracted muscle. On medium pressure it should not have any areas of induration.

Different degrees of pain are experienced by the patient, but if the finger is kept straight, the median portion of the gland avoided, and a light stroke downward and mesially is made excessive pain will be avoided. The vesicular region is next explored, and this to be satisfactorily done means a reach of at least three and one-half inches with the finger. The vesicles are situated above and lateral to the prostate, normally they cannot be palpated, but an attempt should be made to strip them with a light stroke downward and mesially. It should be said at this point that if the gland feels normal, if the secretion shows no pathological elements on the first examination, this in no means excludes the diagnosis of prostatitis, especially when the symptoms point to focal infection. The patient should be asked to return for at least three massages, and if thought necessary diathermy before he should be told he has no disease of this gland. Here by repeated massage and the heat of diathermy you promote drainage of the stagnant sloughs and ponds at the head of the prostatic system, and many times will be rewarded by definite evidence of pathology. It can be said that only with the finger, thru palpation, the patient never should be given a diagnosis of prostatitis. On securing the fluid it will be seen to be of a pale, opal, semi viscous gelatinous material, which on exposure to air loses some of its elasticity. Under the microscope, using a 1-6th lens and cover slip you will see normally lecithin bodies, which are clear, have no nuclei, no crenation of the membrane, and vary in size up to that of a white blood cell. Spermatozoa may be present. If normal and freshly examined they will display varying amounts of motion. There is seen a thin stroma thruout the field resembling a spider's webb. Pathologically we see dead spermatozoa, pus cells varying from five upwards, these cells are disintegrated, there is some disturbance of the nuclei, and some crenation of the membrane. They may be free or arranged in clumps. If clumped this gives very definite evidence of pathology and shows that the gland is draining very poorly.

**Treatment:** The methods of treatment are legion, and no one set method will apply to all cases successfully. It is well to say that if you are treating this pathology and are cock sure that you can render them all microscopically permanently free of pathological elements in the secretion, you are doomed to many disappointments.

What should be told every patient with prostatitis is that he has a chronic infection of a gland that will take some time to improve symptomatically, that for the first two or three treatments he may seem to get worse, that as soon as this gland gets to draining well he will improve symptomatically, that after his symptoms have ceased, and the gland, if it does clear up microscopically, should be checked at least once every three months to keep up drainage and assure himself that no stagnation is present if possible.

Owsley Grant has fittingly said that the methods of treatment of prostatitis may be likened to a vast army arranged in Echelon; first, the reconnaissance scouts of orally administered sedatives, second the light cavalry of vaccines, third the machine guns of massage and diathermy, then the infantry of fixed bayonets or vasopuncture, and in dire need supported by the heavy artillery of prostatectomy.

Prostatic massage ranks first in treatment, and in doing this the gland must be gone over thoroughly, taking care not to produce any undue trauma or abuse, always with the stroke downward and mesially. Much damage can be done with this manipulation, it does not look very nice for a patient to be massaged today and come in day after tomorrow with an epididymitis or acute prostatitis. I do not believe it should be massaged any oftener than twice per week. You must be on the lookout for bladder irritability, and if present discontinue massage until it subsides. An attempt should always be made to strip the vesicles. It may be said that massage increases blood supply, promotes drainage and at each time massaged an attempt is made to press the secretions out of the small bayous and ponds at the head of the prostatic system, as it is in these minute places that absorption takes place. The larger ducts drain well enough, and just as soon as you get the more remote gland structure draining well that soon will you get a satisfied patient.

I would place next in treatment local applications to the urethra. It is impossible to have a chronically infected prostatic without some pathology in the prostatic urethra consisting of granulations, edema, and denudation of the mucosa. Local application here of silver nitrate up to 2% or the colloidal silver salts following massage will reap some benefit. You must approach the patient cautiously, mercurochrome in 1% aqueous solution is irritating to some ure-

thras. Begin with the less irritating salts as nov-argentum, neo-silvol, etc., and gradually increase percentage, shifting to nitrate of silver in very dilute solutions until the patient can take it with very little discomfort. I believe that a little personal experience works wonders here, if you are able to take a one per cent nitrate of silver yourself with comfort, then expect the patient to do the same. I believe that if every man doing this work was first massaged and local applications made he would at least find out that gentleness counts, and he would not attempt to use highly irritating drugs in the urethra in concentration. Dilatation with the Kolman dilator, or sounds progressively may be tried with benefit, here again a little personal experience will count and assure the patient gentleness.

Diathermy I would place next. Much has been written and retracted already about this agent. It is not a cure all, it can not even be used alone on the average patient with results which are lasting. Properly applied and in selected cases it certainly is a useful agent. It is pleasing to the patient, it promotes blood supply, increases diapedesis, stimulating in this way drainage of this gland. If the specimen shows much clumping of the pus cells, if the gland is extra firm, if the secretions are extra hard to secure, if in other words you think that very little drainage is taking place in the gland structure, then this agent should be tried, taking extra care that the patient is closely watched for bladder irritability. Lately I have had two cases respond badly to this agent, after the first treatment they developed a definite hematuria and vesicle tenesmus, I attribute it entirely to this agent as no irritating drugs were used locally, also the patients showed immediate improvement upon the removal of diathermy. I never exceed 600 milliamperes, do not diathermize this gland longer than thirty minutes, at all times watching the patient, because it is very easy for the electrode to get misplaced, or there may be surges come in on the electric line causing fluctuation in the milliampercage. I believe diathermy should be stopped as soon as you get even distribution of the pus cells in the specimen, as drainage is assured in this way. Massage should always follow diathermy.

Next will come vaccines of which autogenous or stock may prove of some benefit. A properly prepared autogenous vaccine is much better than the shot gun method of stock vaccine. Shuler, in cultural work has

found some fifteen types of bacilli and cocci in the prostatic fluid and states that the streptococcus hemolyticus occurs most frequently. He states that autogenous vaccine therapy occupies a major place. To culture the fluid he uses a gelatin brain broth making it anaerobic with some oil on top of culture. He has found the streptococcus hemolyticus in 31% of cases. In arthritis associated with prostatitis he has found 63% of positive cultures. Non specific protein therapy as aolan, lactamnese, typhoid vaccine, lactogen, etc., act as an aid in metastatic conditions benefitting also the existing prostatitis. Injections of antiseptics into the prostatic bed or prostatic substance as mercurochrome or Pregyl's solution has been attempted with no general response better than other methods. I believe this method carries sufficient possible power for harm to override the benefits derived.

Intraurethral manipulations generally speaking for simple prostatitis is not good practice. In persistent cases, where there can be other pathology than prostatitis the entire urinary tract should be thoroughly examined. To cystoscope or urethroscope one patient with a simple prostatitis, a posterior urethritis, or trigonitis will not reveal anything new. After looking at one you have seen them all, they all show a varying amount of redness, edema, and erosion of the mucous membrane, if any localized granulations are found these should be touched with silver nitrate 20-50%.

The surgical end of prostatitis I will not attempt to discuss, only mention them. Vaso-puncture is an expert's job, and yet I have never been able to puncture the vasa thru the scrotal skin. I am from Missouri in believing that every patient can be entered successfully by this route. Vasotomy is much better, and this consists in cutting down on the vas on each side and injecting towards the vesicles, collargol, argyrol, or other antiseptic. Five to ten c.c. is sufficient, the patient's sensation of fullness in the perineum serving as a guide for filling of the vesicles. This is an excellent method in treating persistent cases. An attempt is made in this way to carry the antiseptic to the seat of the infection, and with one stroke sterilizing the vesicles.

In conclusion, I would like to say that the logical therapy in the treatment of prostatitis should be directed to drainage of this gland, quite naturally when the gono-

coccus and tubercle bacillus are not found, and that to assure drainage massage properly administered, in the occasional case supported by diathermy, and in all cases combined with local applications to the posterior urethra will secure subsidence of the symptomatology that this gland is responsible for. Also I would like to leave the impression that the patient should be considered each and every one individually, other foci of infection cleared, and appropriate therapy instituted.

#### LOCAL ANESTHESIA IN THE TREATMENT OF FRACTURES

E. EUGENE RICE, M.D.  
SHAWNEE

The reduction of fractures under local anesthesia is not a new procedure as it was first attempted in 1885 by Conway, and successfully reported by G. Lerda in 1907 and Quenu in 1908. Since that time, with the less dangerous cocaine derivatives such as novocain, tutocain, and neocain, and the greater development of local anesthesia as a routine procedure for nearly all surgical conditions, this procedure has become more generally used. Lorenz Bohler in the Arbiter Unfall Krankenhaus in Vienna reports its successful use in over three thousand cases of all types of fractures without infection, injury, or intoxication.

The object of all anesthesia in the treatment of fractures is the relief of pain, both due to the trauma of the injury which is aggravated by the slightest movement, and to relieve the pain due to manipulation in the reduction and application of support.

General anesthesia is never needed for reduction of fractures as local, regional, nerve block, or spinal anesthesia can be used in every case, both adults and children, with more ease, less danger, and with the promise of better results than general anesthesia.

The indications for the use of local anesthesia is any unreduced or improperly reduced fracture, either recent or old, simple or compound, which needs manipulation.

In recent fractures injection of the hematoma as so successfully carried out by the Bohler method as will be described, is simple, successful, and without danger.

In compound fractures where the hema-

toma is not intact and the novocain solution is likely not to completely infiltrate the entire hematoma but leaks out through the external wound, and in old fractures where the hematoma is well organized, it is necessary to inject the whole circumference of the bone.

Spinal anesthesia or brachial plexus anesthesia is indicated in fractures over two weeks old, difficult fractures and dislocations of the pelvis, upper and lower extremities, especially where there is great local trauma, and also trauma elsewhere as of the thorax, lungs, bladder or urethra.

The advantages of local anesthesia are numerous, the more important are that the anesthetist can be dispensed with; no general disturbance as associated with a general anesthesia; patient can go to the X-ray room alone, cooperating with the roentgenologist in the taking of the pictures; deformity can be corrected several times if necessary and the fluoroscope can be used to better advantage with the aid of the patient; relaxation of the muscles is much more pronounced than under shorter anesthesia; local anesthesia lasts two to three hours and can be repeated if necessary; hospitalization is not necessary in the case of less severe fractures; patient can go home unassisted after reduction; aged people and those with hypertension, a decompensated heart, pulmonary or renal disease, can stand a local infiltration where general anesthesia could not be used; post-operative pneumonia, passive and active congestion, shock, and alcoholic manifestations are avoided.

The technique of local anesthesia is very simple. The hematoma injection as recommended by Bohler is the easiest and gives excellent analgesia and is the method that has been used in my cases.

Determination of the site of the fracture is important and should always be done by the X-ray preceding the reduction and also by the site of the tender point and the deformity.

The skin is painted with tincture of iodine, there is no need of shaving the parts or other preparation. The needle is injected until the bone is felt. Now 4 or 5 cc. of a 2% novocain solution without adrenalin is injected and the syringe is removed from the needle. If a red colored solution escapes from the needle we know we are in the hematoma and now 15 to 20 cc. of the solution is injected. If only a clear solution returns the needle must be shifted until the hematoma is punctured.

If there is a comminution or more than one bone fractured each site of fracture should be injected. The patient should be prone during the injection so that there will be no attempt to use the extremity as the pain disappears at once and the patient might cause himself further injury.

Now the fracture can be manipulated without pain with perfect muscle relaxation as much as necessary and proper support applied without fear for the safety of the patient.

A 2% solution of novocain is used because it gives quicker, more complete, and more prolonged anesthesia than the usual 1/2 to 1% solutions and is without danger, as a smaller quantity is necessary, but 50 to 60 cc. can be injected with safety.

The amount of solution depends upon the size of the hematoma, the location of the fracture, and the amount of damage to the surrounding tissues. Enough of the solution should be used to induce good anesthesia as there is little danger of using too much novocain.

In compound fractures the needle should be inserted through the sound tissue and not through the traumatized and potentially infected tissues and injection around the bone may be necessary in addition to the hematoma.

I have used local anesthesia exclusive to all others since seeing Professor Bohler and have had perfect anesthesia, although at first I was afraid to use enough of the novocain solution and the injection had to be repeated, but now a sufficient quantity is used at the initial injection to complete the reduction without further anesthesia. My series have included Colles, ulna and radius, femurs, humerus, tibia and fibula, Pott's and of the smaller bones, both simple and compound, and comminuted, with excellent prolonged anesthesia.

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#### SPINAL AND SPLENCHNIC ANAESTHESIA IN THE RELIEF OF INTESTINAL OBSTRUCTION—WITH A REPORT OF THREE CASES.\*

BENJAMIN W. WARD, M.D.

TULSA

Since Wagner<sup>1</sup> in 1922 published his first paper on the treatment of "ileus" with spinal anesthesia, the foreign literature has been replete with case records of intestinal obstruction treated by its administration. In April, 1926, Rosenstein and Kohler<sup>2</sup> published the results of their experiments on rabbits with intestinal obstruction due to ileus upon which they induced splanchnic anesthesia through the use of large amounts of dilute procaine solution, thus securing a relief of the condition. They concluded that it would be necessary to use procaine in amounts in excess of human tolerance to accomplish the same results with patients and so used and recommended nicotine in its stead. They employed three to five milligrams of nicotine clinically in six cases, giving the drug by the posterior splanchnic method.

Ochsner and his co-workers, Gage and Cutting<sup>3</sup>, conducted a series of experiments on dogs in 1928, at this time unaware of the work of Rosenstein and Kohler and, in a masterly article in the Journal of the American Medical Association, published their results in June of that year. These men were the first to recommend the establishment of splanchnic through the use of novocain by the posterior method in the relief of intestinal obstruction due to ileus of a paralytic or adynamic type. In the interval between 1922 and 1928 the French apparently were most active and persistent in the use of spinal anesthesia for this purpose.

Duval<sup>4</sup>, as quoted by Ochsner et al, col-

\*Read before Tulsa County Medical Society, October 27, 1930.

lected 400 cases of intestinal obstruction in which spinal anesthesia had been used. These were divided into three groups: First, strangulated hernia; Second, adynamic ileus; Third, mechanical ileus. In the cases of adynamic, paralytic, and spastic ileus, the condition was relieved in 68% of cases. In those of mechanical ileus, relief was obtained in 16%. In this connection, I can do no better than quote from the paper of Ochsner, Gage and Cutting: "In cases of mechanical obstruction there is, early, an interference with the contractility of the intestinal musculature. In fact, hyperperistalsis is invariably present. The obstipation and toxemia are the result of mechanical obstruction and the intestinal musculature becomes paralytic as a result of prolonged distention or toxemia. It is folly to assume that any more beneficial results would be obtained by renewing the peristalsis without removing the obstruction than were obtained before the adynamic ileus set in." Let us then, at the outset, make it very clear that spinal or splanchnic anesthesia is indicated for relief *per se* only in those cases in which no mechanical obstruction is known to exist.

What is the rationale of this form of treatment? Both spinal and splanchnic anesthesia are directed to the abolition of the inhibitory influence exerted by the sympathetic system upon the intestinal musculature. Experimental evidence indicates that a condition of reflex tonus exists by reason of the action of the sympathetic nerves supplying the intestine and the effect of this tonus normally is the prevention of excessive peristalsis. The fact that section of the splanchnics produces a marked increase in intestinal movements is adduced as evidence in support of this idea; again, stimulation of the splanchnics produces a reduction or cessation of these motions. Marked and continued stimulation would bring about a condition of relaxation of the intestinal musculature of varying degree as a direct result of the inhibitory action of the sympathetic fibres. Therefore, any method that would accomplish the interruption of such inhibitory influence should cause a renewal of peristalsis, or strengthen its force if already present, provided the intestinal musculature is still capable of contraction. That the establishment of spinal or splanchnic anesthesia does, in fact, accomplish this is amply demonstrated by many experiments.

As early as 1899 the physiologists Bayliss and Starling noted that section of the

splanchnic nerves resulted in increased intestinal peristalsis. The well-known "physiologic ileus" observed upon opening a dog's abdomen is relieved and replaced by a condition of active peristalsis under spinal anesthesia as proven by the experiments of Markowitz and Campbell<sup>5</sup>. These men further demonstrated that, in the same animal, a paralytic ileus caused by iodine solution placed in the peritoneal cavity or by rubbing loops of intestine with gauze could be relieved by the induction of spinal anesthesia. Ochsner and his co-workers were able to duplicate these results with splanchnic anesthesia by the posterior technique of Kappis and to elaborate upon them to a considerable degree. Again, it has long been recognized by abdominal surgeons that upon opening the abdomen the intestines are found in a state of hyperperistalsis or contraction when their patient is anesthetized by the subarachnoid route.

Armed with the above information and fortified by encouraging results published by European workers such as Chenut<sup>6</sup>, Asteriades<sup>7</sup>, and others as well as White in this country, I decided to use either spinal or splanchnic anesthesia whenever a suitable case presented itself. The opportunity was afforded on three occasions and the following technique used to produce anesthesia by these methods.

*Technique for the induction of spinal anesthesia:* The site of puncture over the second lumbar interspace was anesthetized by 1% novocain solution to which 3/4 gr. ephedrine sulphate had been added—the ampoules containing novocain and ephedrine solution already prepared are acceptable. The spinal puncture was made with the patient sitting on the side of the table. 100 to 120 milligrams of neocain was dissolved in 2-3 c.c. of spinal fluid removed from the patient. An amount of spinal fluid equal to that contained in the syringe was then withdrawn and half of the total amount injected with considerable rapidity; again, an equal amount of spinal fluid was added to that left in the syringe and two-thirds of the total injected rapidly; finally, spinal fluid was again aspirated equal to the amount remaining in the syringe and the entire amount injected rapidly. The whole maneuver consuming much less time than it requires to describe. The patient was at once placed in a moderate Trendelenburg position. Anesthesia to the level of the nipples was obtained in this way. It is, of course, necessary that the anesthesia of the cord be high enough to in-

terrupt the pre-ganglionic fibers to the thoracic ganglia from which the splanchnics are derived. The technique described has given an anesthesia of sufficient height.

*Technique for induction of splanchnic anesthesia, posterior route:* The method advocated by Labat was used and this description, somewhat abbreviated, is taken from his writings. With the patient lying on either side, back arched, knees flexed and drawn up toward the face, the twelfth rib and the first lumbar spine are defined by palpation. A cushion is slipped under the loin, if the spine is too much bent sideways. A wheal is raised on the lower border of the twelfth rib opposite the first lumbar spine, approximately 7 cm. distant from the midline of the back. A needle is passed through this wheal and contact is made with the twelfth rib. The needle is then introduced deeply in the plane of the cross-section of the body, that is, vertically to the table on which the patient is resting, and passing just beneath the lower border of the rib is advanced forward and inward in a direction making an angle of 45 degrees with the median plane of the body. If correctly introduced, the needle's point, at a depth of about 8 to 9 cm. comes in contact with the body of the first lumbar vertebra just in front of the intervertebral foramen. The needle is then partially withdrawn and reinserted several times, its direction being changed slightly each time; the angle which it originally made with the median plane of the body is reduced and bony contact is again made with the body of the vertebra until finally the point of the needle passes tangentially to the body of the first lumbar vertebra. As soon as bony contact is lost, the needle is introduced one centimetre further and, after aspiration, injection is made of 25 c. c. of the ½% novacain solution. The needle is then withdrawn until its point reaches the subcutaneous tissue and is reintroduced in a direction inclined slightly downward aiming at the middle part of the body of the second lumbar vertebra. A technique similar to that described being followed and a second injection made at about the level of the second lumbar vertebra. Injection should be slow and the aspiration test made and repeated several times during the injection to insure against its being made into a blood vessel. The opposite side of the body is injected in the same way.

#### CASE RECORDS

Case No. 1. Mary C., colored, aged 34,

a housewife, apparently in robust health. This patient was seen in consultation during labor. She was a primipara and had been in labor forty-eight hours, forceps had been applied under ether anesthesia but delivery not effected. In consultation a diagnosis of uterine inertia as a result of myomatous growth was made and a low mid-forceps delivery effected under ether anesthesia some hours after the original attempt. A stillborn child weighing nine pounds being delivered with some difficulty after a deep episiotomy. The patient began to exhibit considerable abdominal distention twelve hours later and after thirty-six hours this was marked and repeated vomiting was occurring despite the use of gastric lavage, hot abdominal stapes, pituitrin and rectal flushes. No flatus or fecal material was discharged after the first flush. At the end of forty-eight hours after delivery auscultation over the abdomen revealed the tinkle of fluid in the right lower quadrant but no audible peristalsis. The patient was given 2% saline by hypodermoclysis and 3% saline by vein to the amount of 3000 c.c. during the ensuing twenty-four hours as well as repeated rectal flushes which still produced no results. At the end of another period of twelve hours the patient was becoming rapidly weaker with a pulse rate of 132, subnormal temperature, and a cold, clammy skin. I obtained permission to attempt her relief by the induction of spinal anesthesia. The patient's blood pressure was 102 systolic and 76 diastolic at this time. ¾ grain of ephedrine sulphate was given hypodermatically with the novacain that infiltrated the spot of spinal puncture. Through the second lumbar interspace 120 milligrams of neocain was introduced into the subarachnoid space at 1:30 p. m., and the patient immediately placed in the Trendelenburg position. Attendants were prepared to give a rectal flush but at 1:45 p. m., the patient began to pass large amounts of flatus and foul smelling material involuntarily. During the afternoon frequent bowel movements occurred and by 10:00 p. m., after the administration of more saline by vein and subcutaneously, the vomiting ceased, pulse volume was good, rate 102, skin warm, blood pressure 124 systolic and 32 diastolic, and the abdominal distention completely relieved. Further recovery uneventful. The blood pressure rose to 117 systolic immediately after the administration of ephedrine and dropped to 80 systolic within ten minutes after induction of spinal anes-

thesia, it then gradually rose to 100 within the following hour.

**Case No. 2.** Mrs. T. C., aged 29, white, a housewife, weight 92 pounds, appearance emaciated. This patient was a chronic sufferer from bronchial asthma. She had been hysterectomized for a pelvic infection at 24 years of age. She was seen first for attacks of bronchial asthma and once was treated for what was apparently a condition of partial intestinal obstruction and relieved by hot stupes to the abdomen and rectal flushes. Operation following this recovery was refused. I was summoned early one morning to find this patient suffering from an acute intestinal obstruction, the history obtained at this time elicited the following facts: no bowel movements for three days, vomiting and cramplike pains in the abdomen for twenty-four hours with increasing abdominal distention. Her general condition at this time was fair. Pulse rate was 108, blood pressure 114 systolic, 72 diastolic, skin warm and moist. Within an hour her abdomen was opened under ethylene anesthesia, she was quickly eviscerated and a rapid exploration revealed a marked dilatation of the entire jejunum and upper two-thirds of the ileum with this section of bowel bluish and filled with fluid material. There was free fluid of a straw color in the abdominal cavity. The lower ileum had two slender bands of adhesions about three inches apart almost occluding the bowel lumen and a third band just above the ileocecal junction which was completely occlusive. These were divided after an intestinal clamp had been placed on the bowel just below the lowermost band and the intestine was completely emptied of its foul contents after the method advocated by Holden of Portland, Oregon. The abdomen was closed without drainage. The patient did well for twenty-four hours and then abdominal distention began and increased rapidly. Vomiting was almost continuous after thirty-six hours and rectal flushes and gastric lavage failed to relieve either the distention or the vomiting. Saline solution was given in copious amounts by vein and subcutaneously but forty-eight hours after laparotomy patient was in a desperate condition. Blood pressure at this time was 98 systolic, 62 diastolic, pulse rate 128, facies pinched, and all the signs of severe intestinal toxemia present. It was decided to use splanchnic anesthesia as suggested by Ochsner, Gage, and Cutting, it being felt that the case was one of paralytic

ileus. After a preliminary hypodermic of  $\frac{3}{4}$  gr. ephedrine sulphate, 50 c. c. of  $\frac{1}{2}\%$  novacain solution was introduced on each side into the splanchnic area by the technique of Labat, itself a modification of the technique of Kappis. The patient was placed in a moderate Trendelenburg position and her blood pressure which had risen to 116 systolic, 74 diastolic, after the administration of the ephedrine, now dropped to 88 systolic but slowly rose to 96 systolic within a half hour. This anesthetic was administered at 10.40 a. m., and at 11:00 a. m., a rectal flush obtained excellent results and auscultation over an abdomen that had been previously ominously silent now revealed sounds of active peristalsis. This patient recovered without further evidence of intestinal paresis or paralysis.

**Case No. 3.** Richard L., a white male, aged 19, a farmer, general physical condition prior to present illness excellent. This patient was operated on by a confrere and had an acute, gangrenous appendix removed. He developed what was apparently a paralytic ileus following the operation. All other measures failing, in consultation five days after operation, the induction of splanchnic anesthesia was suggested. At this time the young man was in a critical condition stercoraceous vomiting having occurred. This suggestion was accepted. The blood pressure at this time was 100 systolic and rose to 108 systolic after ephedrine had been given. It fell to 90 systolic after the anesthetic solution had been introduced into the splanchnic area. Within two hours it had again risen, this time to 102 systolic. The procedure was started at 5:15 p. m., and at 5.40 p. m., a rectal flush was followed by the discharge of large amounts of foul-smelling fluid with small fecal particles. By the following morning the patient was no longer vomiting and the distention had disappeared. Frequent rectal flushes had been given during the night as well as gastric lavage and the administration of 2000 c.c. of saline solution by veins and hypodermoclysis. The patient recovered.

The case records presented, it is believed, are representative of the type of intestinal obstruction which can be relieved by the use of spinal or splanchnic anesthesia. In each one the history and physical examination were such that a diagnosis of paralytic ileus could be made with reasonable assurance of accuracy. Again, in each, the circumstances were such that mechanical obstruction could be dismissed

as the probable cause of the ileus. In the first instance, no previous operation had been performed and there were no evidences of hernia. It must be admitted that pelvic peritonitis with resulting intestinal adhesions might have been the cause but there was no history suggestive of such a condition and, as a rule, these patients show a tendency to partial intestinal obstruction before the acute condition develops although this is by no means invariable.

In the second case, the mechanical obstruction had been removed and complete exploration accomplished so that it was felt that the ileus was of true paralytic type due to the toxemia and long continued over-distention of the intestinal musculature, both of which probably provided a source of stimulation to the splanchnic system resulting in undue inhibitory influence being exerted.

In the third case; local peritonitis was known to exist at operation and while it was not at all certain that a true mechanical obstruction from peritoneal adhesions was not present, it was thought that the patient should be given the benefit of the doubt and in any event the abdomen could be opened under local anesthesia within a half hour if no results were obtained.

It is hoped that the writer's position with regard to the use of spinal or splanchnic anesthesia in cases of intestinal obstruction has been established definitely. The personal conclusion has been reached that, in cases of intestinal obstruction due to so-called paralytic or adynamic ileus, in which no mechanical obstruction co-exists, spinal or splanchnic anesthesia may be used with reasonable expectancy of a relief of the condition provided the intestinal musculature is still capable of contraction. Certainly in cases of strangulated hernia, volvulus, intussusception, or obstruction by bands of adhesions, etc., all definitely mechanical conditions, it cannot be expected that "chemical section" of the splanchnics, as Alsina<sup>s</sup> terms it, by spinal or splanchnic anesthesia will remove the obstruction. Any such case in which spinal or splanchnic anesthesia was administered without operative interference must be expected to die as the peristalsis induced by the anesthesia alone would prove only harmful, it being impossible for it to remove the mechanical obstruction present.

It lies not within the scope of this paper to discuss the differential diagnosis of the various forms of intestinal obstruction.

Volumes could be written and, indeed, have been written on this subject and any attempt to go into the matter here would not only be time consuming but also in the nature of "carrying anthracite to Scranton," as Dr. John Cooper would say. However, it would not be amiss to suggest that in those borderline cases in which pre-operatively the nature of the obstruction cannot be determined, spinal anesthesia might well be established and if within a limited time no good results were obtained, the abdomen could then be opened under the same anesthetic.

The objection may well be raised, as indeed it has been, that the use of a method which produces usually a marked drop in blood pressure in a patient who is already in a condition of surgical shock is one extremely hazardous. This must be admitted. However, interference of any sort on such patients is dangerous in the extreme and since death is inevitable without relief, the hazard, I feel, is justified. Here it might be said that the use of ephedrine a few minutes before the induction of anesthesia and the placing of the patient in the Trendelenburg position immediately after, are even more indicated, if possible, than in the routine use of spinal or splanchnic for other conditions. Again, the use of saline by vein and subcutaneously in sufficient volumes before the administration of anesthesia is as imperative here as in any case of intestinal obstruction. If the blood pressure is very low acacia and glucose solutions may be used in addition to the ephedrine to raise its level prior to the establishment of anesthesia. Lastly, the use of rectal flushes, hot stupes to the abdomen, pituitrin or eserine in certain cases, should previously be given a fair trial although it is folly to wait more than a short time as every minute is precious. Finally, I have seen cases in which laparotomy had been done for obstruction, the obstruction relieved, and an enterostomy opening made in which the enterostomy failed to drain and the patient died. I believe that in such cases the use of splanchnic anesthesia is justified as a last effort to renew the peristalsis in the paretic bowel and I know of one case in which this was done with a favorable result.

With regard to a choice between the two methods, it is felt that since they have been used in only three cases, a definite statement cannot be made. However, each seems to possess certain advantages. For the majority of practitioners spinal anes-

thesia is the more familiar and is easier of administration, it can be used for subsequent laparotomy and exploration should this prove necessary, and it accomplishes the relaxation of the anal sphincter which may be an advantage in the more rapid relief of the overladen intestines above. In addition, only one puncture is necessary for the establishment of spinal anesthesia whereas at least two are needed to induce splanchnic. On the other hand, splanchnic anesthesia is directly applied to the splanchnic area and no complete anesthesia of the body from the nipples down is produced. In other words, it accomplishes a single, directly aimed at result with no additional anesthesia effect. Since many cases of ileus occur after operation, this avoids an early repetition of complete anesthesia. Apparently the extent to which the blood pressure drops after each has not been compared but the personal impression obtains that there is a less marked drop after splanchnic anesthesia than spinal. In the hands of an expert, splanchnic would seem to be less dangerous in its use than spinal. Labat after a very large series of cases has never noted any serious untoward effects.

#### SUMMARY

Based upon favorable reports in the literature with regard to the relief of certain types of intestinal obstruction by the use *per se* of spinal or splanchnic anesthesia and upon experimental evidence that from a physiologic standpoint, such treatment would be rational, three cases in private practice were so treated.

A brief account of the technique used in induction of both forms in these cases was given and case reports were presented in which spinal anesthesia was used once and splanchnic anesthesia by the posterior method of Labat twice, in the treatment of paralytic ileus. In all three cases an evacuation of the intestines was obtained and the patient recovered.

It was stressed that while a mechanical obstruction continued no favorable results could be hoped for and the anesthesia *alone* was positively contraindicated. No attempt was made to differentiate mechanical obstruction from various forms of ileus in which there was no actual occlusion of the intestinal lumen. A possible objection to the use of such anesthesia was discussed and means suggested to combat its cause. No definite conclusion was reached as to final preference for either form although some advantages of each were mentioned,

it being felt that the very nature of certain cases would dictate the choice.

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Suite 823 Wright Bldg.

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#### "STONE WALLS DO NOT A PRISON MAKE NOR IRON BARS A CAGE."

Winter is a jailer who shuts us all in from the fullest vitamin D value of sunlight. The baby becomes virtually a prisoner, in several senses: First of all, meterologic observations prove that winter sunshine in most sections of the country average 10 to 50 per cent less than summer sunshine. Secondly, the quality of the available sunshine is inferior due to the greater distance of the sun from the earth altering the angle of the sun's rays. Again, the hour of the day has an important bearing: at 8:30 a. m., there is an average loss of over 31 per cent, and at 3:30 p. m., over 21 per cent.

Furthermore, at this season, the mother is likely to bundle her baby to keep it warm, shutting out the sun from Baby's skin; and in turning the carriage away from the wind, she may also turn the child's face away from the sun.

Moreover, as Dr. Alfred F. Hess has pointed out, "it has never been determined whether the skin of individuals varies in its content of ergosterol" (synthesized by the sun's rays into vitamin D) "or, again, whether this factor is equally distributed throughout the surface of the body."

While neither Mead's Viosterol in Oil 250 D nor Mead's 10 D Cod Liver Oil with Viosterol constitutes a substitute for sunshine, they do offer an effective, controllable supplement especially important because the only natural food-stuff that contains appreciable quantities of vitamin D is egg-yolk. Unlike winter sunshine, the vitamin D value of Mead's antirachitic products does not vary from day to day or from hour to hour.

—o—

#### TRAUMATIC RUPTURE OF BLADDER, WITH PERIVESICAL EXTRAVASATION

W. Calhoun Stirling and Norvell Belt, Washington, D. C. (Journal A. M. A., June 15, 1929), report on seven cases. Hematuria, disturbance of urination, pain and a tumor mass in the suprapubic area constitute the usual picture of rupture of the bladder. Treatment consists of (1) supportive measures, including transfusion if needed, salt solution under the skin, opiates for relief of pain, and control of all bleeding, and (2) immediate suprapubic cystostomy, together with counterperineal drainage if needed.

# THE JOURNAL

OF THE

## Oklahoma State Medical Association

Issued Monthly at Muskogee, Oklahoma, under direction of the Council.

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor  
Medical Arts Building, Tulsa, Okla.

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This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, Barnes Building, Muskogee, Oklahoma. \$4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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### EDITORIAL

#### THIS ISSUE

We believe that this issue of our Journal is one of the most practical and useful ever issued. We believe it should be closely read by every practitioner, as well as by many specialists. It deals with matters too often not observed early enough and sometimes entirely overlooked which leads to the discomfiture of the physician and loss of confidence, if not injury on the part of the patient.

*Cross-Eyes, Early Treatment*, by Dr. C. B. Barker, Guthrie. Dr. Barker points out the proper time and the rationale for the

treatment of cross eyes and makes a strong plea for their attention at a time when the best results may be expected.

*Nephropathies*, by Dr. Hugh Jeter, Oklahoma City. Dr. Jeter bases his paper on 276 autopsies. He states that nearly all adult kidneys show pathology, that nephrolithiasis, hydronephroses and pyelitis are frequently unsuspected even in hospital cases. (The writer is well aware of the wisdom of this assertion and recalls many such cases occurring in a strictly hospital practice in the past 7 years. Post-surgical cases, for a time apparently doing well, then suddenly developing symptoms of more or less seriousness, are often traceable to pyelitis or some genitourinary condition. These the surgeon must always keep in mind).

Bright's Disease, Dr. Jeter concludes is not a local disease but in most cases is a consequence of some local disease.

*Spinal and Splanchnic Anesthesia in Intestinal Obstruction*, by Dr. Benjamin W. Ward, Tulsa. This is one of the gravest conditions confronting the surgeon. It demands immediate diagnosis and very prompt and proper care if the life of the patient is to be saved. The technic is well described by Dr. Ward.

*Hereditary Syphilis*, by Dr. Carroll M. Pounders, Oklahoma City. This is a condition almost invariably seen by the family physician and not by the specialist. Therefore, it follows if it is not recognized no hope of control is to be expected.

*Intravenous Urography*, by Dr. Joseph Fulcher, Tulsa. Attempts have been made for many years to secure some means by which the condition of the kidney could be determined by the administration of drugs. The greatest and last step toward the end has been attained by the application of intravenous urography. This work, of course, should be limited strictly to the genito-urinary specialists. Nevertheless the general practitioner should not prolong palliative and symptomatic treatment when a thorough workout may point to the exact diagnosis as well as the indicated treatment of the case.

*Laboratory Tests in the Diagnosis and Treatment of Syphilis*, by Dr. Marque O. Nelson, Tulsa. Physicians are too prone to blindly rely upon laboratory findings. Dr. Nelson points out the many findings which may attend positive or negative dark fields, positive or negative Wassermann, and positive or negative spinal fluid findings.

The significance of his article lies in the statement that these findings often vary with the time the specimens are taken as well as other factors entering into the case.

*The Diagnosis and Treatment of Prostatic Infections.* by Dr. Shade D. Neeley, Muskogee. If there is any one thing that is overlooked to a remarkable degree it is prostatic infections. Non-history of venereal infections should not cause the practitioner to overlook the fact that prostatitis has more than one source of infection. The proper treatment of the condition is well stated by Dr. Neeley.

*Local Anesthesia in the Treatment of Fractures,* by Dr. Eugene E. Rice, Shawnee. This form of treatment is practically nonexistent in most hands, yet, it is accompanied by so little danger, is so brilliantly successful and the technic so easily mastered, that there is little excuse for it not being used in a great many cases. Some surgeons have used it in literally thousands of cases.

#### THE REGISTRY OF BONE SARCOMA

Many physicians and surgeons are already familiar with the registration through the information from the American College of Surgeons of the Registry of Bone Sarcoma. But inquiries reveal that many are not aware of the existence of this great aid to diagnosis and how to proceed to receive the benefit of it.

The American College of Surgeons will supply a form which calls for certain data which should accompany any specimens submitted to the Registry for their opinion. Aside from data as to the patient, operator, roentgenologist, pathologist and hospital, previous condition of health is called for; what physician made the physical examination; diagnosis, based on history, physical examination, X-rays and biopsy, if performed. Then the treatment of various types which may be used: Gross pathology, microscopic pathology, progress of case and findings of last examination.

When in doubt or even not in doubt, it is well to send the microscopic slides to the Registry of Bone Sarcoma for their opinion. The members of the committee are composed of outstanding authorities on malignancy in the United States. Communications should be addressed to Bowman C. Crowell, M.D., Registrar, 40 East Erie Street, Chicago, Illinois.

For more explicit information, those interested are referred to Surgery, Genecology and Obstetrics, pages 721-721, May, 1924.

#### Editorial Notes—Personal and General

DR. F. M. COOPER, Ponca City, is reported ill at his home.

DOCTOR WM. PAT FITE, Muskogee, attended the meeting of the American College of Surgeons in Baltimore.

DR. F. G. PRIESTLEY, Frederick, suffered painful injuries when he fell down the steps leading from his office.

DR. W. C. MITCHENER, Okmulgee, sailed March 20th for Vienna, where he will study for three or four months under specialists in diagnosis and obstetrics.

GARFIELD COUNTY MEDICAL SOCIETY held its regular meeting, March 5th, at Enid. Dr. E. S. Ferguson, Oklahoma City, read a paper on "Diseases of the Eye."

DOCTOR J. HOY SANFORD, St. Louis, formerly a member of Muskogee County Medical Society, addressed that Society, March 23rd on "Urology and the General Practitioner."

PAYNE COUNTY MEDICAL SOCIETY held its regular meeting March 20th in the office of Dr. H. C. Manning, Cushing. Dr. Manning spoke on "Pelvic Infections," which was followed by a general discussion.

MUSKOGEE COUNTY MEDICAL SOCIETY, March 30th, heard Dr. Leonard Williams, Oklahoma City, on "New Methods of Diagnosing Gynecological Conditions," and Dr. W. K. West, Oklahoma City, on "Fractures of the Leg."

KIOWA COUNTY MEDICAL SOCIETY held its regular meeting March 23rd, at Hobart, Oklahoma. Dr. B. H. Watkins, Hobart, read a paper on "Clinical Diagnosis of Obstruction of the Bowels." This was followed by a round table discussion.

CARTER COUNTY MEDICAL SOCIETY met at Ardmore, March 17th. Dr. H. H. Turner, Oklahoma City, spoke on "Endocrinology," which was followed by a talk by Dr. C. R. Rountree on "Fractures of the elbows, wrists and ankles, alignment and treatment."

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES met March 23rd at Henryetta, for their regular meeting. Dinner was served at 6:00 p. m., after which Drs. C. V. Rice and E. H. Fite, Muskogee, delivered addresses on "Coeliac Disease," and "Urinary Obstruction."

### DOCTOR CURTIS R. DAY

Dr. C. R. Day, 65 year old pioneer Oklahoma City physician died March 22nd, at St. Anthony's Hospital, after a month's illness.

Dr. Day was born in Johnson County, Missouri, in 1866, and practiced medicine at Mayview, Mo., for ten years before moving to Oklahoma. He came to Oklahoma in 1901 and started his practice at Edmond. He later moved to Oklahoma City where he has been for the past twenty-three years. He was a member of the first Oklahoma Legislature and at one time dean of the University of Oklahoma School of Medicine.

Funeral services were conducted by Rev. E. C. Wardner, pastor of the First Presbyterian Church of Hobart, and burial was in Rose Hill Cemetery.

Dr. Day is survived by his widow, two sons, one sister and one brother.

### DOCTOR W. T. TILLY

Dr. W. T. Tilly, Muskogee, age 66 years, pioneer Oklahoma physician, died at the Oklahoma Baptist Hospital, March 10th, after a long illness.

He was born in Coker Creek, Polk County, Tennessee, April 25, 1864. Preliminary education was had in the grade schools. He graduated from the Louisville Medical College in 1894. He practiced in Coker Creek for two years, moving to Pryor, Oklahoma, where he remained until 1906. He moved to Muskogee in 1910 and became staff physician and surgeon of the M. O. & G. railroad. During the World war he served as a member of the State medical examining Board. While Judge R. L. Williams was governor, from 1915 to 1919, Dr. Tilly served as an honorary lieutenant-colonel on the governor's staff.

In 1920 Dr. Tilly established the Hospital which bore his own name and which he operated until two years ago.

On October 10, 1930, he suffered the stroke of paralysis from which he never fully recovered. His condition grew steadily worse from this time and resulted in his death March 10th.

He is survived by his wife, Mrs. Alice Hall Tilly and two sons, three sisters, and two brothers.

Funeral services were held March 13th at the First Methodist Episcopal Church South, with Rev. W. S. Vanderpool officiating. Burial was in Greenhill Cemetery with the Masonic order in charge of the services.

### POSTOPERATIVE APNEUMATOIS (ATELECTASIS) AND POSTOPERATIVE PNEUMONIA

Pol N. Coryllos, New York (Journal A. M. A., July 13, 1929), concludes from his experiments that the determining cause of postoperative atelectasis is bronchial obstruction by viscid bronchial exudate. Postoperative immobilization of the thoracic cavity by pain, impairment of cough and respiratory movement by narcotics, and posture are only favoring factors. The dominant factor in the post operative lung condition is bronchial obstruction and impairment of the free bronchial drainage. The fate of the lung parenchyma after bronchial obstruction depends on the microbes infecting the obstructing mucus. A nonvirulent type IV pneumococcus will produce atelectasis, a more virulent pneumonia, pyogenic and anaerobic organisms, lung suppuration or gangrene. In atelectasis pneumococcus group IV is always present, just as in pneumonia. Between them there is a difference only in the degree of virulence. Clinical evolution, roentgenographic study, pathologic changes, and, above all, experimental investigation, offer evidence for this conception.

### TREATMENT OF VARICOSE VEINS OF THE LEGS

A survey of a series of 4,607 cases made by Norman J. Kilbourne, Los Angeles (Journal A. M. A., April 20, 1929), shows positively that the mortality by operative excision of varicose veins in America is one in 250. The mortality by injection cannot be so accurately determined; but a study of 50,000 cases shows that it is less than one in 4,000. Recurrences after operation average 30 per cent, and after injection 6 per cent. Although embolism, phlebitis, ulcer formation and gangrene are rare, no injection should be made until they have been prevented by thorough preliminary study.

### EXPERIENCE WITH THE HENCH-ALDRICH METHOD FOR DETERMINING BLOOD UREA

Edwin C. White and Harry C. Ricker, Baltimore (Journal A. M. A., April 20, 1929), state that the Hench-Aldrich method has advantages over the urease method because of its rapidity and simplicity. A single determination can be made in from ten to fifteen minutes, and if several are to be made together the time required for each is proportionately less. When a centrifuge holding eight tubes is used, eight determinations can be made in less than half an hour. The simplicity of the method is such that it can easily be carried out by one with even a minimum of laboratory training. For this reason it probably gives more accurate results in the hands of a relatively inexperienced worker than the urease method would give. From the results obtained by White and Ricker it is clearly evident that in no case was a clinical error made by the use of the mercury method; indeed, in a majority of cases the check against the urease method (at least in the ranges up to 70 mg. per hundred cubic centimeters) was as close as one could obtain in duplicate determinations by the urease method. The report is made in the belief that greater familiarity with this method will lead to its advantageous employment in many instances.

## CONDENSED PROGRAM

### THIRTY-NINTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 11, 12, 13, 1931

*Meeting Places*—Shrine Temple, Oklahoma City, Telephone 2-0036.

*Hotel Headquarters*—Skirvin Hotel, Telephone 2-1251.

*Registration*—All physicians, except those from outside the State and visiting guests, must hold membership certificates for 1931 before they may register. It is urgently requested that all physicians attend to this matter by arranging their membership status with their County Secretary, if it is in doubt, before attempting to register.

Women will register Mezzanine floor Skirvin Hotel.

*Delegates*—Prior to the meeting the President will appoint a Credentials Committee. This Committee will function for the purpose of registering Delegates at the Shrine Temple, early on the evening of Monday, May 11th. It will save a great deal of time for the Council as well as aid the quick organization of the House of Delegates if each Delegate will present his credentials as soon as possible to the Credentials Committee.

*Papers*—Are the sole property of the Association and should not be taken from the meeting place but should be deposited either with the State Secretary or with the Secretary of the Section in which they are read. These papers should be prepared in triplicate, a copy for the author's use; a copy to be sent prior to the meeting to the one designated to open discussion of the paper; the third copy for use in the Journal. Before final publication the author will be sent proof for his correction as well as quotations on the price of reprints, which are furnished by the printer of our Journal, at about actual cost. Reprints should be requested in advance, otherwise the type may be destroyed, after which they can only be had by resetting the article entirely. Papers should be double spaced, with wide margins, and should contain:

1. The title.
2. Name of author, address and street number.

3. The section in which read and time presented.

*House of Delegates*—Will meet at 8:00 P. M., Monday, May 11, in Harding Hall, Shrine Temple, for the transaction of such business as is necessary.

The House of Delegates must also meet at 8:00 A. M., Tuesday, May 12th, in the small banquet room, of the Shrine Temple. This meeting for election of officers.

*Council*—Will meet at the Skirvin Hotel, Monday, May 11th, 3:00 P. M., and thereafter upon call of the President. It is the function of the Council to originate and consider all business affairs of the Association. All matters involving finances and expenditures of funds must be presented to and considered by that body.

*Hotel Rates*—Dr. J. Z. Mraz, Chairman on hotels for the annual meeting, announces the following rates:

<b>SKIRVIN HOTEL</b>	
(All rooms with bath)	
Single.....	\$250, \$2.75, \$3.00, \$3.50, \$4.00
Double.....	\$5.00 and \$6.00

<b>HUCKINS HOTEL</b>	
(All rooms with bath)	
Single, without bath.....	\$2.00
Single, with bath.....	\$2.50 and \$4.00
Double.....	\$1.00 more than single

<b>WELLS-ROBERTS HOTEL</b>	
(All rooms with bath)	
Single.....	\$2.50, \$3.00 and \$3.50
Double.....	\$4.00, 4.50 and \$5.00

<b>BLACK HOTEL</b>	
(All rooms with bath)	
Single.....	\$2.00, \$2.50 and \$3.00
Double.....	\$4.00 and \$4.50

<b>KINGKADE HOTEL</b>	
(All rooms with bath)	
Single, without bath.....	\$1.25 and \$1.50
Single, with bath.....	\$2.00 and \$2.50
Double, with bath.....	\$3.50, \$4.00 and \$4.50

<b>EGBERT HOTEL</b>	
(All rooms with bath)	
Single, without bath.....	\$1.50
Single, with bath.....	\$2.00 and \$2.50
Double, without bath.....	\$2.50
Double, with bath.....	\$3.00 and \$3.50

<b>PARK-O-TELL HOTEL</b>	
(Tourist Hotel) near State Capital Building on Highway 77, or located at Magnolia and Lincoln Blvd. Dining room and regular hotel accommodations. All rooms, except two, with bath.	
Single.....	\$2.50 up
Double.....	\$3.50 up
	Shower and tub in every room; garage for car included in price of room.

#### SECTION AND MEETING PLACES SHRINE TEMPLE

*Exhibits*—All exhibits, both commercial and scientific, as well as registration will

be held in the large banquet room on the ground floor. Registration may be made at this place beginning with the morning of Monday, May 11th.

*General Medicine*—Will meet on the ground floor, small banquet room.

*Eye, Ear, Nose and Throat*—Will meet in the Band Room, ground floor.

*Surgery*—Will meet in Harding Hall.

#### JOINT SCIENTIFIC SECTIONS

The mornings of May 12th and 13th, beginning at 8:30 o'clock, will be held in Harding Hall as follows:

##### TUESDAY, MAY 12TH

8:30 *Fractures Clinic*—Chairman, Wade H. Sisler, M.D., Tulsa.

*Mal and Ununited Fractures*—W. P. Fite, M.D., Muskogee.

*Fractures of the Upper Extremity* S. R. Cunningham, M.D., Oklahoma City.

*Fractures of the Skull*—Horace Reed, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—John Musser, M.D., New Orleans.

11:15 *Address*—Dean Lewis, M.D., Professor of Surgery, John Hopkins University, Baltimore.

##### WEDNESDAY, MAY 13TH

8:30 *Fractures Clinic*—Chairman, Wade H. Sisler, M.D., Tulsa.

*Mal and Ununited Fractures*—W. P. Fite, M.D., Muskogee.

*Fractures of the Upper Extremity* S. R. Cunningham, M.D., Oklahoma City.

*Fractures of the Skull*—Horace Reed, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—Vilray P. Blair, M.D., Professor Clinical Surgery, Washington University School of Medicine, St. Louis.

11:15 *Address*—Bransford Lewis, St. Louis, Mo.

*Committees*—The following Committees have been appointed to function on behalf of Oklahoma County. Prospective attendants should communicate with these committeemen with reference to the particular feature which they may be directing:

*General Chairman*—Dr. Cyril E. Clymer.

*Vice-Chairman*—Dr. Henry H. Turner.

*Program*—Dr. A. W. White, Chairman; Dr. Ray Balyeat.

*Finance*—Dr. E. S. Lain, Chairman; Dr. L. J. Starry.

*Badges*—Dr. Phil McNeil.

*Entertainment*—Dr. J. M Alford, Chairman; Dr. Rex Bolend; Dr. Dick Lowrey.

*Golf*—Dr. Wendell Long.

*Reserve Officers*—Dr. John A. Roddy, Chairman; Dr. Lea A. Reily.

*Fraternal Dinners*—Dr. E. P. Allen; Dr. John Heatley.

*Women's Entertainment*—Ladies' Auxiliary, Mrs. C. M. Pounders, President.

*Hotels*—Dr. John Z. Mraz.

*Exhibits*—Dr. Earl D. McBride.

*Scientific Exhibits*—Dr. Curt von Wedel.

*Fraternal dinners* will be held Tuesday, May 12, 6:00 P. M.

*General Meeting* will be held Tuesday, May 12, 8:00 P. M., Harding Hall, Shrine Temple.

#### PROGRAM, GENERAL MEETING

TUESDAY, MAY 12, 8:00 P. M.

Shrine Temple, Oklahoma City

*Presiding*—C. E. Clymer, M.D.

*Invocation*—Rev. A. M. Jayne, Oklahoma City.

*Music.*

*Address of Welcome*—Representative of Chamber of Commerce, Oklahoma City.

*Response*—W. Albert Cook, M.D., Tulsa.

*Music.*

*Introduction of E. S. Ferguson, M.D.*, retiring President.

*Introduction of President-Elect Henry C. Weber, M.D.*, Bartlesville.

*Introduction of Guests.*

*President's Address*—Henry C. Weber, M.D., Bartlesville.

#### ORATIONS

WEDNESDAY, MAY 13TH, 7:45 P. M.

Harding Hall, Shrine Temple

*"Gastro-duodenal Ulcer, Medical Aspects"*—A. W. White, M.D., Oklahoma City.

"*Gastro-duodenal Ulcer, Surgical Aspects*"—P. P. Nesbitt, M.D., Tulsa.

"Recent Advancement in Allergy"—Ray M. Balyeat, M.D., Oklahoma City.

President's Reception and Dance, Wednesday, May 13, large dining room, Shrine Temple.

### GOLF

#### Annual State Medical Tournament MAY 11TH. 1931

Oklahoma City Golf and Country Club (Nichols Hills). Start teeing-off at 9:00 A. M. Every member of State Medical Association eligible and guest of Oklahoma County Medical Society. Prizes numerous and fine. Arrange to play:

1. By mailing name and estimated handicap to Golf Committee, 714 Medical Arts Building, Oklahoma City.

2. By indicating to Registrar.

To play golf on May 12th and 13th, consult golf committee or speak to registrar—it will be arranged.

### OKLAHOMA PEDIATRIC SOCIETY

MONDAY, MAY 11TH, 1931

*Morning Session 9.00 o'Clock*

*Children's Hospital—800 N. E. 13th St.*

Clinics By

Dr. J. B. Snow

Dr. Geo. H. Garrison

Dr. Clark H. Hall

Dr. A. L. Salomon

Dr. W. M. Taylor

*Afternoon Session 1:30*

*Shrine Temple—Sixth and Robinson Ave.*

1. *Chairman's Address*—Carroll M. Pounders, M.D., Oklahoma City.

2. *The Diagnosis of Enlarged Thymus*—Fannie Lou Brittain, M.D., Oklahoma City.

3. *Personal Experience with Enlargement of the Thymus*—Maurice J. Searle, M.D., Tulsa.

4. *Neuro-endocrine Problems in Children*—Henry H. Turner, M.D., Oklahoma City.

5. *Congenital Neurosyphilis with Many Convulsions, Particular Reference to the Effect of Tryparsamide*—T. H. McCarley, M.D., McAlester.

6. *Scurvy in Children*—C. W. Arrendell, M.D., Ponca City.

Election of Officers.

### WOMEN'S AUXILIARY

Mrs. J. Z. Mraz, Editor, Oklahoma State Women's Auxiliary, makes the following announcement:

*General Headquarters*—Skirvin Hotel.

*Registration*—Mezzanine floor (it is requested that registration be made as soon as possible).

*Progressive House Party*—Monday evening, May 11th, 1931.

*Meeting of the Women's Auxiliary*—Tuesday, morning 10:00 o'clock, May 12th, followed by luncheon.

*Dance*—Wednesday, May 13th, 9:00 P. M., Shrine Temple.

Mrs. Carroll M. Pounders, 904 East 19th Street, Oklahoma City, is General Chairman of arrangements for the social entertainment of the visiting ladies.

*Golf*—Dr. Wendell Long, announces that the Oklahoma City Golf and Country Club, Twin Hills Golf Club and the Spring Lake Links will be available for visiting physicians.

### SECTION CHAIRMEN

#### GENERAL MEDICINE

Ben H. Cooley, M.D., Chairman, Norman.

H. H. Turner, M.D., Secretary, 1200 North Walker, Oklahoma City.

#### EYE, EAR, NOSE AND THROAT

Ruric N. Smith, M.D., Chairman, Medical Arts Bldg., Tulsa.

A. L. Guthrie, M.D., Secretary, Medical Arts Bldg., Oklahoma City.

#### SURGERY

W. C. Vernon, M.D., Chairman, Okmulgee.

Leonard Williams, M.D., Secretary, 1200 North Walker, Oklahoma City.

All communications with reference to the Scientific Sections should be addressed to these officers.

### ORTHOPAEDIC SURGERY

Edited by W. K. West, M.D.  
520 Osler Building, Oklahoma City.

"Colles' Fracture"—Surgical Monograph on Reconstructive Surgery of The Upper Extremity. By Arthur Steindler, Page 254.

The disability following Colles' fracture of the wrist depends, as to degree and duration, upon several factors. The extent of the deformity of the bone is not the only determining factor in the

percentage of disability. There are some cases that show a marked Silver-Fork deviation and yet have acquired a great degree of usefulness, while others, showing much less deformity, are types that result in considerable disability. One of the causes for disability, other than bone deformity, is the injury to the ligaments and the hemorrhage which results, later causes tendon sheath involvement and prevents free action of the flexor tendons. Another cause for disability is a resulting traumatic arthritis which may have a great deal to do with the extent of disability. The muscles of the forearm undergo shrinkage and degeneration and the circulation may be impaired. The age of the patient usually has a great deal of influence upon the outcome. Old people tend to develop traumatic arthritis.

The writer covers fifteen cases of old Colles' and forearm fractures ranging in age from fifteen to sixty-seven years and duration of deformity from three weeks to a year following injury.

In the first group there are six cases with considerable deformity. Of the six, three had poor function and three good function. Five cases had moderate, slight, or no deformity and in this series function was poor in two cases, fair in one, and good in two. In other words, the degree of deformity did not entirely govern the degree of disability. On the other hand, there were six cases over forty years of age, five of which had very little, if any, deformity. But, the end-result was poor in five of the six and fair in one case.

In the treatment of fracture deformities of the forearm and wrist, the after-treatment plays a most important part. The patient should have early motion, starting within eight or ten days, and should be continued until the maximum recovery has been reached.

**"Infantile Paralysis"—Textbook on Orthopedic Surgery for Nurses by Philip Lewin, Page 53.**

The writer in this brief discussion of a condition that was very prevalent last year brings out a few of the important points in the consideration of the cause, diagnosis, and treatment. This disease is of an acute infectious nature, usually occurring in young children and resulting in partial paralysis of the extremities, abdominal wall, and back. The causative factor is unknown, but is sometimes described as a filtrable virus and sometimes a type of streptococcus. The infective agent usually gains entrance through the respiratory tract and is carried to the spinal cord or brain. Milk-borne epidemics have been reported.

From a pathological standpoint, the first change noted is meningitis, accompanied by an increase of spinal fluid. The spinal cord changes are most marked in the anterior horns at the lumbar and cervical enlargements. The paralysis results from, first, a direct pressure on the nerve cells; second, anemia, due to constriction; and, third, direct action of the virus on nerve-cells, causing degeneration.

There are several stages: First, the acute stage, lasting about a week. Second, subacute stage, which lasts from one to four weeks during which time the constitutional symptoms subside, but the paralysis persists. Third, stage of partial recovery, a period from the end of the first month perhaps to the end of the second year. Fourth, chronic stage, which begins when return of function has largely ceased.

The general symptoms which lead one to

suspect infantile paralysis are as follows: Illness of a child occurring between the months of June and November, indisposition, fever, irritability, neck rigidity, convulsions. Later, tenderness of the spine and back muscles is noted. Slight weakness and tenderness of one of the extremities may be the first sign of beginning paralysis.

Spinal puncture reveals a clear, colorless fluid under moderately increased pressure.

Except in epidemics the diagnosis is usually not made before there is some evidence of paralysis.

The prognosis depends upon one of three factors: First, the area and extent of destructive lesion of the cord; second, the resistance of the patient; and, third, the treatment of the weakened parts.

Deformities occur because of the unopposed action of muscles. That is, the deformities are produced by a pull of the normal flexor muscle which is unopposed by a paralyzed extensor muscle.

The orthopedic treatment should begin as soon as the diagnosis is made. Mechanical treatment should be used to prevent deformity such as equinus of the foot, flexion of the knee, contraction of the shoulder, etc.

In the acute stage there must be absolute rest. A lumbar puncture may be performed to relieve increased pressure. As soon as the patient's comfort will permit, a careful record of individual muscle power should be made on specially prepared blanks in order that the progress may be properly studied. Hot water baths should be given. Motion of the affected parts may be begun early, and without pain, in hot water, whereas in bed, the motion is extremely painful.

In the subacute stage muscle training, in addition to the splinting to prevent deformity, there must be a protection against the overstretching of muscles. These indications are met by such measures as abdominal binder, spine brace, leg and arm splints. Nurses should use care in maintaining correct bed positions. Later on, exercises are taken in warm water tanks and muscles re-education is carried out. All cases of infantile paralysis should learn to swim, if possible.

In the chronic stage braces are worn, massage and muscle reeducation continued. It is most important to have a brace if there is any involvement of the spine. In the cases in which there has been a resulting deformity, in young children especially, a great deal can be done for the correction of these deformities by mechanical or operative procedures. However, it must be borne in mind that it is not best to operate within two or three years following the acute attack. Probably the most common types of operations could be described as, first, tenotomies for the lengthening of the tendons of contracted normal muscle groups and, second, arthrodeses which consists of removal of sufficient bone about the joints to correct deformities and to later cause ankylosis which will prevent the recurrence of the deformity. Arthrodesis is especially useful in the operative treatment of paralytic clubbed-foot deformities. All operative procedures should be followed by proper fitting braces for several months after the child has begun to bear weight on the affected member.

## Dermatology and Syphiology

Edited by James Stevenson, M.D.  
615 Medical Arts Building, Tulsa

**Two Types of Arsphenamine.** Rueben L. Larsen,  
*Am. J. of Syph.* 15:50-58, January, 1931.

Arsphenamine is commonly made by precipitating the drug from methyl alcohol with ether. Larsen calls attention to the frequency of reactions following the use of arsphenamine so prepared, and believes the methylation the cause of these reactions. He discusses Kober's method for the preparation of arsphenamine in which only aqueous solutions are used, and which the drug is finally precipitated with a cold aqueous solution of hydrochloric acid. The Kober arsphenamine differs from the arsphenamine prepared by earlier methods in several ways: its sulphur content is less, averaging .3 per cent; it is very slowly soluble in water, but insoluble in methyl alcohol. The curative dose in rats infected with Trypanosomiasis averages 8.5 mg. per kg., while the tolerated dose averages 190 mg. per kg. The author reports 805 injections in human syphilis made using the arsphenamine prepared by the Kober method without a single reaction.

**Concerning the Curative Values of Certain Bismuth Compounds.** Sigmund S. Greenbaum, *Am. J. of Syph.*, 15:59-71.

The author cites clinical cases to show that the various bismuth preparations on the market for the treatment of syphilis vary in their efficacy. Many manufacturers have placed a product for use which has never been studied experimentally beforehand. Greenbaum reports the results of experiments on rabbit syphilis with twelve commonly used bismuth products. Injections were given intramuscularly and cure was determined by the tissue transfer (lymph gland) method. A wide variation in the curative dose of the different bismuth products was noted. "Bismuthoidal" was curative in dosage as low as 2 mg. per kilo., while more than 25 mg. was required in the case of bismudol, and also with "iodobismuthate of quinine." Bismuth salicylate also proved relatively inefficient. Potassium bismuth tartrate in aqueous solution or in oil were efficient, being curative in doses of 5 mg. per kilo. Conceding that experimental results obtained in rabbits does not necessarily indicate that the same will follow in the treatment of human syphilis, the author maintains that the bismuth preparations now in use vary widely in effectiveness, and that only the established few preparations should be used. The vaunted superiority of new preparations should be carefully investigated before being utilized.

**Herpes Zoster With Varicella.** R. R. McCormick, *Journ. A. M. A.* 96:766-770, March 7, 1931.

Reporting four cases of Herpes Zoster occurring simultaneously in adults in contact in the same occupation, the author supports the theory that there is more than coincidence present when Zoster and varicella occur simultaneously. One of the four cases reported developed a generalized varicella-like eruption on the twelfth day of his Zoster attack, and all cases occurred in the midst

of a local epidemic of varicella. One death occurred and the necropsy indicated the primary pathology to be in the posterior ganglions, secondarily involving the posterior portion of the spinal cord. A review of the literature on the coincident occurrence of these two diseases is given.

**The Treatment of Cardio-vascular Syphilis.** Joseph E. Moore and James H. Danglade, *Am. Heart J.* 6:148, 1930.

The authors emphasize the necessity of avoidance of the Herxheimer reaction in treating cardio-vascular syphilis, and commence treatment cautiously with bismuth, mercury and the iodides. Later neuarsphenamine or bismuth is given in small doses. Treatment is prolonged, a minimum being two years. With the anti-syphilitic treatment is combined the routine medical measures as rest, restriction of activities, and digitalis.

A study of 43 patients with aortic aneurysm, 90 with aortic regurgitation and 8 with other various forms of syphilitic cardio-vascular disease shows that life has been much prolonged over the average in untreated cases.

These data demonstrate that properly directed anti-syphilitic therapy is of great benefit in cardio-vascular syphilis.

## Urology and Syphiology

Edited by Rex Boland, B.S., M.D.  
1010 Medical Arts Building, Oklahoma City

### CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

Spare specifics and spoil the patient.

The more dark fields the fewer regrets.

Sharpen your needles and keep your patients.

All things have an end except the fears of a syphilitic.

Whale away at syphilis when it's new; coax it when it's old.

Always fix the purpose of your treatment twenty years in the future.

The patient treats for today and tomorrow; the wise doctor for the future.

Most neurosyphilitics get that way through some doctor's inadequate treatment.

Undertreat syphilis in its early stages and you swell the ranks of incompetents and public charges.

Believe every sore on the penis to be a chancre until you prove it to be something else.

An apple a day may keep the doctor away but a "peach" some day will bring him back.

To have the fullest respect for syphilis you must have practiced medicine for at least twenty years.

Some fear death and some fear hell but to the syphilitologist the most fearsome thing of all is the spirochete.

Make your syphilitic patients read the 38th Psalm. They'll be better men for it and better patients, too. And, by the way, read it yourself.

If you believe that you cure syphilis just because you render the blood Wassermann negative, you are certainly making your patients candidates for cerebrospinal syphilis.

If you can look back over twenty years without recalling a syphilitic inadequately treated through your own fault, then truly you may claim that you have been a successful practitioner.

Some of the continental syphilitologists are wondering just how much influence the spirochete had in starting the World war. One might go further and wonder how much of all the hell on this earth has been caused by the spirochete—in some ruler's brain.

#### INTRAVENOUS PYELOGRAPHY IN DIAGNOSIS OF RENAL TUBERCULOSIS ABSTRACTED IN S. A. M. U.

Perlmann asserts that the favorable results of nephrectomy in unilateral renal tuberculosis are largely due to the improved methods of urologic examination. First he discusses cystoscopy and the indigo carmine test. In a large percentage of cases these two diagnostic methods are satisfactory. In other instances they cause difficulties and are therefore not advisable, and in such cases intravenous pyelography has proved helpful. The author gives several case reports which illustrate the significance of pyelography by means of intravenous administration of the contrast medium. This method is helpful in cases of unilateral tuberculosis, but it is particularly indicated in bilateral disorders, in contracted bladder, in case of strictures of the ureters or the urethra, and for control examination after unilateral nephrectomies. Intravenous pyelography is without danger for the patient and reveals the anatomic conditions of the urinary tract. However, as a functional test it is alone not sufficient, and it has to be supplemented by other methods. In patients with tuberculosis of the bladder, intravenous pyelography is much less painful than intravesical examination.

#### EXTRACTS FROM THE WEEKLY MEETING OF UROLOGICAL STAFF—UNIVERSITY HOSPITAL

A book report "Gonococcal Urethritis in the Male," by Dr. P. S. Pelouze of University of

Penn., was given by Dr. Akin. This included a study of applied anatomy and histology, bacteriology and defensive processes, symptoms and clinical courses, with charts to indicate same, treatment, cause and prevention of complications and method of determining cure. The scope of the book was unfortunately, too extensive to permit desirable detailed discussion by the staff.

Dr. Borecky agrees with most of the author's ideas but has not found vaccine to be very effective. He also thinks we often overtreat patients by too strong solutions.

Dr. Moore thinks that patients vary as to the anatomy of the urethra which accounts for the fact that some are not as susceptible as others and may not be so hard to cure. For example there are occasional cases of congenital strictures which prevent drainage and the types of epithelium are different in some cases from others. Dr. Moore feels that Methyln Blue is as good or better method than gram stain for differentiation from gonococcus. He also emphasized the fact that non-specific urethritis is very common and can be found if more microscopic examinations are made. He gives the most common causes of non-specific urethritis as: chemical irritation, sexual excesses. He thinks also that we should instruct patients as to diet because of its psychic effect, and also of its effect on the course of the disease. Exercise as mentioned by the author, should be moderate.

Dr. Hayes stated that the principal points in the book which impressed him on first reading were: 1. Heat therapy has little or no effect on Gonorrhea. 2. Blonds are much more susceptible than brunettes and are much harder to cure. 4. The disease runs a definite clinical course just as typhoid, measles, or any other infectious disease and by making proper records we can easily determine whether or not our method, up to the present time, whereby daily records can be kept indicating the true condition of the patient. 6. Complications are invariably due to trauma, of some type, notably, alcohol, sexual excess, or overtreatment. Acute epididymitis is due to straining with a full bladder thereby forcing infected urine down the vas deferens. 7. Diet has no effect on the course of the disease tho, the ingestion of alcohol is harmful. 8. Treatment should be of the gentlest type and no treatment at all is preferable to too much treatment.

Dr. Bolend would like more evidence before accepting the idea that there is not more than one strain of gonococcus. He thinks that the gonophage will probably prove to be of considerable value when it has been studied a little more. He believes that diet has little or no effect on the course of the disease and that we should be sincere with patients and avoid giving them a lot of instructions which have no scientific basis.

Dr. Bolend also feels that the 2 glass test has a bad psychic effect in that the patient learns to do it himself and draws wrong conclusions from it. The only way it is of value is when microscopic examinations are made of each specimen and deductions made therefrom. Permanganate irrigations cannot be carried out without trauma and he is opposed to them.

Dr. Wallace believes that we cannot intelligently treat G. C. until we learn to classify it in its different stages, that is, incubation, acutivity, decline, and chronic stage. The treatment then, should be administered accordingly. He also thinks the 2 glass test extremely valuable and uses it in all cases. Only way to demonstrate the true pathology without injury to the patient.

## EDUCATIONAL RELATIONS OF PROFESSIONS

David Allan Robertson, Washington, D. C. (Journal A. M. A., April 27, 1929), asserts in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929, that specialization in various academic divisions has contributed greatly to American educational progress. With the increase of specialization has come the danger of one educational unit isolating itself from another. Conscious of the danger, some of these divisions have learned the importance of cooperating in the solution of common problems. Among the professions and professional schools the danger likewise exists and to some extent has been met in the same way. No profession, no educational group in the United States, has made greater progress through specialization than medicine. At the same time medicine has endeavored to guard against isolation from the rest of the educational world. There has been an attempt to avoid the isolation of medicine from education; meanwhile there is evidence of isolation of education from medicine. Without losing the advantages of specialization Robertson hopes that each division of education will afford every other one the advantage of its experiences and that each will welcome the cooperation of other educational units. The schools and colleges can more effectively cooperate with the medical profession if the profession will teach them what a physician does. Specialization and cooperation is his plea.

## RELATIONSHIP OF MEDICAL EDUCATION TO COST OF MEDICAL CARE

Ray Layman Wilbur, Washington, D. C. (Journal A. M. A., April 27, 1929), in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 1929, says that as at present organized, medical education is costly in time and in money to the student, to the teaching institution, and consequently to the public. There is no valid reason why the medical course leading up to the hospital experience should require longer than three calendar years. There is certainly no adequate reason for the long summer vacation period. Following this three-year period, medical education now requires intimate association with the hospital in the form of an internship or something similar, and close supervision of students actually carrying on the functions of physicians. Just at present there is developing an exuberance in some plans for building for medical instruction leading up to the degree of doctor of medicine. In one of our great cities the plan is now going forward for the construction of a plant at an approximate cost of \$55,000,000, with the primary aim of undergraduate instruction of medical students. With a striking absence of facilities for the profession to obtain real opportunities for so-called post-graduate training, it seems absurd to aggregate such large sums of money in metropolitan centers for undergraduate medical instruction. No such sums are actually required to give the training necessary. There is no great advantage to the medical student in being in a large, elaborate, highly organized plant. Small classes are requisite for modern medical training. Simple conditions in which the patient, teacher and student can have daily and intimate contact, need not be

excessively expensive. It is evident as we look at medical education that there has been an elaboration of plant, a marked increase in expense, an increase in the amount of time required for training, and a general set-up that starts the young physician off comparatively late in life after a large expenditure of time and money. Since the only capital which a physician has is in himself, and the only possession he has is his time, and since life is limited, it is important that a proper scheme be evolved so that medical education may not put too great a cost on the sick. We do not want cheap medical education or cheap men; but we do need a demand all the economies that are reasonable and possible during the period of medical training if we are to solve the coming problem of the distribution of medical service at a reasonable cost to the public. Any one who tries to chart the course of a young physician going into our present economic system cannot help but be impressed with its poor organization from an economic standpoint. It is just as clear that while this lack of organization may make it difficult for the young physician, it makes it doubly difficult for the patient unless he happens to be so fortunately situated as to be empty of pocket or rich. It is clear that medical practice is far behind the plans that have been developed in industry and in many other forms of public service. It will require the most searching study of the facts and the application of these facts in the true spirit of the experimenter if we are to develop conditions that will make it possible for physicians to meet their own problems and for a single illness not to become a prolonged handicap to an individual or to a family. Perhaps there is need in medical education for the training of physicians in the field of economics and social organization. While it is true that the physician belongs to a profession with a long history of service for any one in physical need, it is likewise true that training in the social sciences has not been the strong point of the medical student or of the medical school. In fact, the physical and biologic sciences have taken such a predominant place in the curriculum and in our thinking that it has been difficult to find time for courses for the training of physicians in handling even their simple business affairs. Perhaps the medical school is not ready yet to insist on a training in economics, government, political science and history, and the relations of medicine thereto; but unless such training and such thinking are soon started the present chaos in medical practice will inevitably make for high charges on the sick and an inadequate return to the physician. The medical profession must stand for adequate preparation and sound training; but it need not demand abnormal expenditures of time and money to provide elaborate specialized training in all of the fields of medicine for the candidate for the degree of doctor of medicine. Simplification of the curriculum, reduction in the number of calendar years, increase in the hospital opportunities, the adoption of relationships of hospital to medical practice so that the young physician may receive a salary and yet be connected with hospitals and clinics for further training, will all help to make him more effective and of ultimate benefit to the public.

PROGRAM, ANNUAL SESSION, OKLAHOMA CITY, MAY 11-12-13, 1931

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## PAPERS AND CLINICS FROM THE MEDICAL SERVICE OF THE CRIPPLED CHILDREN'S HOSPITAL, OKLAHOMA CITY

Infantile Tetany With Case Report of Gastric Tetany, Following Operation for Pyloric Stenosis . . . . .	Dr. W. M. Taylor
Pyloric Stenosis in Infancy . . . . .	Dr. Clark H. Hall
Symptomatology of Asthma in Children . . . . .	Dr. Ray M. Balyeat—Dr. Herbert J. Rinkel
Endocrine Clinic	
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Laurence-Biedl Syndrome . . . . .	Dr. Henry Turner
Causes of Respiratory Obstruction in Infants and Children . . . . .	Dr. L. C. McHenry
Chronic Discharging Ears as a Menace in Children . . . . .	Dr. Theodore G. Wails

### INFANTILE TETANY WITH CASE REPORT OF GASTRIC TETANY FOLLOWING OPERATION FOR PYLORIC STENOSIS

W. M. TAYLOR, M.D.  
OKLAHOMA CITY

Tetany as applied in a clinical sense is a condition in which there is an abnormal response of the nervous system to various irritations and stimuli. Tonic spasm of the muscles of the hands and feet (carpopedal spasm) of the larynx (laryngospasm) and tendency to develop general convulsive seizures are the striking manifestations of this condition.

Calcium metabolism disturbance is manifested by hypo-calcemia in most forms of tetany, though not in gastric tetany. It might be well to regard tetany as a symptom-complex and Hess (6th Edition, Page 386) states: "In light of more recent experimental and clinical facts it must be regarded as a symptom-complex without a specific etiology." Rickets may be usually demonstrated in cases of acute tetany though not a cause.

It is a familiar happening in the prac-

tice of physicians to note the fact that a group of children in one family will be victims of convulsive seizures at the onset of even mild infections with but little fever, while the children of the next door neighbor reared under similar supervision and environment will not react in the same manner, though the infection is virulent, the onset is abrupt and with a hyperpyrexia. The underlying condition represents what we understand as latent tetany or spasmophilia and may represent a familial transmission from neurotic parents. These infants often gain slowly, regurgitate food and suffer from colic. Certainly they lack the stable nervous system of the normal child. Latent tetany is a predisposing cause to acute tetany.

Treatment of infantile tetany is usually followed by prompt response. Briefly:

- a. Calcium chloride thirty to forty grains daily.
- b. Viosterol fifteen to thirty drops daily.
- c. Sunlight or ultra violet irradiation, carefully guarding the time of exposure, though in my experience have never seen an ex-

- aggeration of symptoms from violet ray.
- d. Cod liver oil in dosage of one to two teaspoonsful daily.

Calcium gluconate is recommended per mouth and by hypodermic use if calcium chloride is not well tolerated, though I have never had occasion to use it.

Barker states that, though the parathyroids may be an etiological factor in some forms, definite proof is lacking for other forms of tetany.

Graham in his *Surgical Diagnosis*, Vol. II, Page 490, mentions gastric tetany as occurring in dilatation and obstruction of the stomach. Also mentions that gastric tetany may arise as a complication of pyloric stenosis; with acute dilatation of stomach also in adults. The cause of the symptoms of gastric tetany is believed to be a state of alkalosis and tissue anoxemia that arise from excessive loss of acid from the body. One feature of gastric tetany is that there is no change in the blood calcium.

*Alkalosis:* Quoting Marriott on Infant Nutrition, Page 298: "All of the symptoms of tetany may occur in individuals in whom the total calcium content of the serum is normal, but in whom the alkalinity of the serum is increased. Thus tetany is seen in infants who, as the result of vomiting, have developed alkalosis, and it is also seen following the therapeutic administration of alkalines. Pulmonary hyper-ventilation caused by voluntary deep breathing, crying or occurring as the result of fever brings about a removal of carbonic acid from the blood with a shift of the reaction toward the alkaline side; this is often associated with the appearance of all of the symptoms of tetany. The suggested explanation of the occurrence of tetany in the presence of alkalosis is that the ionization of calcium is decreased as the alkalinity of the medium is increased."

#### CASE REPORT

Infant, six weeks old. Family History: Both parents healthy. First child, father frequently had convulsions as a child. Diagnosis of pyloric stenosis based on following history and physical findings: Breast fed baby. Began vomiting food at third week. Vomiting became projectile. Rapid loss of weight. Constipation. Atropine given before feedings furnished some relief for few days. As frequently happens weaned because it was thought breast milk disagreed with baby,

Physical examination showed definite peristaltic waves over epigastric region from left to right. Small mass palpable below the costal border in the upper right quadrant. Baby slightly emaciated and irritable. Dehydration marked.

*Diagnosis:* Pyloric stenosis. Pre and post operative diagnosis same. Operated on in St. Anthony's Hospital at 9:00 a. m. by Dr. H. Reed, under local anesthesia. Ramstedt operation for pyloric stenosis was performed. Baby returned from operation room in excellent condition. Took small amount of water throughout the day without vomiting, though restless. Nurse reported at 4:00 p. m., that on insertion of rectal thermometer preparatory to taking temperature, baby held breath, became cyanotic and had general convulsions lasting less than five minutes. Second convulsive seizure occurred one-half hour later, under my observation. This was a light general convulsion with definite carpo-pedal spasm.

*Treatment:* For general convulsion codein sulph grain one-twenty-fourth hypodermically. Chloral hydrate grains one and one-half in one ounce of water per rectum. Note: The sphincter was quite spastic and the entire amount of chloral in solution was retained. Within twenty minutes the full physiological effect was obtained and though the heart and respiratory action were of good quality the breathing was noisy and child hard to arouse but responded to caffeine and had no more seizures.

The therapeutic indication in these cases of alkalosis is to restore the normal acid base equilibrium so normal saline by proctoclysis was given and well retained throughout the night. The response was so prompt and satisfactory it was not deemed necessary to give saline by hypodermoclysis.

The baby was fed on following morning with whole lactic acid milk mixture and dextrose maltose every four hours. Recovery rapid. No recurrence of tetany. Dismissed from hospital two weeks later retaining all food and gaining two ounces daily.

Cantarow wisely mentions that the pre and post operative management of these conditions has served to greatly reduce their operative mortality and constitutes one of the most significant advances in modern surgery.

Hobart Amory Hare remarks, in his

preface to Cantarow's excellent treatise on "Calcium Metabolism and Calcium Therapy," even today much of our knowledge as to calcium is imperfect and incomplete, even in the minds of those whose researches have qualified them to speak with authority."

Report of this case seems interesting in view of the fact that much investigation is being done concerning the regulation of inorganic metabolism and that this report may add something to strengthen the chain of evidence that tetany may be regarded as a symptom-complex rather than an entity.

#### PYLORIC STENOSIS IN INFANCY

CLARK H. HALL, M.D.  
OKLAHOMA CITY

Vomiting during the early months of life is not an unusual symptom. As a rule it is due to too much food, too short a feeding interval or improper food. There are other causes and among them is stenosis of the pylorus which may be due either to pyloric spasm or hypertrophic stenosis. There is considerable difference of opinion as to whether spasm of the pylorus is a separate entity or whether it occurs as a complication of hypertrophic stenosis. In this clinic we shall consider them together from the clinical standpoint.

The symptoms usually occur the first six weeks of life but may occur later. If the vomiting is present from birth it is probably from some other cause such as deformity of the esophagus or atresia below the pylorus. If the obstruction is in the esophagus it will be impossible to pass a rubber catheter. Most of the cases of pyloric obstruction are in breast fed infants as it occurs early in life when a higher percentage is on the mother's breast. The condition is not so common in girls as in boys. One clinician reports 44 boys and 8 girls in a series of 52 cases. The extent of the stenosis varies. It may be only a slight spasm with some vomiting or complete obstruction due either to marked hypertrophy or severe gastro-enterospasm. The symptoms, of course, vary with the degree of stenosis.

The infants give a history of doing nicely the first two or three weeks of life. Then vomiting, the first symptom, occurs. This may be slight at first and then increases in severity. A short time after feeding, the stomach empties itself or it

may wait until two or three feedings have been taken. There are no symptoms of indigestion. Many times the vomiting is projectile, especially in the cases of complete obstruction. The vomiting in the cases of spasm may not be so marked. Here we may find periods in which there is no vomiting or the patient may vomit only once or twice a day. The general condition of the patient depends upon the amount of food retained. The weight curve gives valuable information as to the progress of the case. The stools are smaller than normal and if the obstruction is practically complete there is very little bowel movement other than mucous. These youngsters fret a great deal, are restless and hungry. There is no elevation in temperature and they are not acutely ill. Water is vomited as well as milk, so the urine is very much diminished in quantity. Soon after water or milk is taken into the stomach, gastric peristalsis is active and the waves become visible. These waves are often not so marked when the trouble is due to spasm. They pass from left to right and frequently, after a severe one, the stomach contracts and empties itself. The waves of the colon pass from right to left and should not be confused with those of the stomach. The gastric wave may be incited by tapping the abdomen over the epigastrium.

If there is considerable thickening of the pylorus, the tumor mass may be felt. It is of the size and shape of an olive and usually is found above the umbilical level to the right of the mid-abdominal line, it may vary from time to time. Sometimes even a fair sized tumor may not be felt. It depends upon the size, thickness of the abdominal wall and the closeness of the tumor to the surface.

The general condition of the patient begins to show the effects of the loss of food and water very soon. The degree depending upon the amount of obstruction and the corresponding loss of food. If the trouble is a mild or moderate obstruction there may be a slight gain in weight, or very little change. Occasionally there may be a remission of symptoms and a temporary improvement in the condition. There may be some gain in weight one day and a loss the next. If the obstruction is complete the child may lose two or more ounces a day. At this rate it is not long until the general condition suffers materially.

*Diagnosis:* Valuable time is often lost between the onset of symptoms and the

time the physician sees the patient, as those in charge feel that the food is the cause of the trouble and several different foods are given a trial. From the clinical history, it is usually fairly easy for any one familiar with the condition to make the diagnosis. The character of the vomiting with the visible peristalsis and the constipation make the diagnosis fairly definite. There is no bile in the vomitus if the obstruction is at the pylorus, while if it is below, bile may be present. If the vomiting is due to indigestion there is a difference in the type and the vomitus. It is not explosive and the child vomits several times, while in stenosis the stomach usually empties itself with one attack or it may not empty until several feedings are taken. There is no nausea if the trouble is at the pylorus.

A method of determining the amount of pyloric obstruction is to siphon the contents of the stomach off four hours after feeding. The normal stomach should be empty before this time. The X-ray and fluoroscope are great aids in establishing the degree of obstruction. The youngster is given barium suspended in butter milk. Normally the food begins to leave the stomach at once and should be beyond in about three hours. If the obstruction is due to a spasm there is some delay but eventually, if the meal is not vomited, it passes out. If there is complete stenosis nothing passes and eventually the stomach is emptied by vomiting.

*Treatment:* There is considerable difference of opinion as to the treatment of these cases. Some men feel that all of them should be treated surgically, others are of the opinion that most of the cases can be handled with cereal feedings and atropin, while others consider a middle ground more reasonable. The success of either group depends largely upon the time the patient is seen. If treatment can be instituted early, while the general condition of the patient is good, then the medical and dietetic scheme should be given a thorough trial. On the other hand, if the patient is seen late when he is in poor condition, then valuable time should not be lost but operation should be performed without delay. If the child is still on the breast, it is probably wise to treat the case surgically as it is not always possible to obtain enough breast milk to make the thick cereal. If operated on, the child's nursing is interrupted very little and recovery is fairly rapid.

Medicinal and dietetic atropin is the

drug that is used. A 1:1000 solution is given 20 minutes before feeding. The solution should be fresh every few days. The dose is increased drop by drop until results are obtained or a diffuse blush is noted. There is considerable difference in atropin solutions even when prepared fresh and very carefully. The drug is more effective when given hypodermically.

In artificially fed babies thick cereal should be used. If the child is on the breast we can alternate between breast feeding and cereal. The feedings should not be more frequent than every four hours. If vomiting occurs within an hour after feeding, the feeding should be repeated and often it will be retained. With feedings of this type the water intake is very much diminished and care must be exercised that sufficient quantity is given. It should not be given after feeding but an hour or less before. Then if it is vomited it acts as a gastric lavage which may aid in decreasing the trouble. Sometimes lavage with soda solution is used and is beneficial, while in other cases it tends to increase the vomiting.

The combined use of atropin, thick cereal and refeeding after vomiting should be given a fair trial. Then, if the weight curve does not start up, surgical treatment should be carried out. It certainly is inadvisable to wait until the condition of the patient is such that it becomes a poor surgical risk. Competent nursing care plays a very important part in the success of these cases.

*Surgical treatment:* If the child is very much dehydrated, salt solution or Ringer's solution should be given subcutaneously before operation. When possible a blood transfusion should also be given. The operation of choice is the Fredet-Ramstedt. It is usually done under local anesthesia. A right rectus incision is made above the umbilical level, the pylorus exposed and an incision with a blunt dissector is made dividing the hypertrophied muscular wall along the longitudinal axis. After operation the breast fed infant is put to the breast very soon. Vomiting may occur for a short time. The general condition is watched very carefully. Usually the progress, after operation, is very satisfactory.

*Prognosis:* If the cases are seen early, and proper treatment instituted, the prognosis is very good. If surgical treatment is indicated and carried out at a favorable time, the patient's recovery should be

satisfactory. The mortality is about 15 to 20 percent. This is due to delay in treatment, accidents and complications. The death rate is very high in the cases that receive no treatment.

The following cases are presented to demonstrate pyloric stenosis in infancy.

Baby H., boy, age 6 weeks when brought to the hospital. The baby seemed normal in every way until he was 3 weeks old. At that age he started to vomit most of his feedings. The vomiting was projectile. There was a steady loss in weight. The bowel movements were very small but well digested. The child was restless and seemed hungry. Peristaltic waves were very evident. Temperature was normal. Four hours after feeding, X-ray showed practically no barium in the intestines. A tumor mass was palpable. The general condition of the patient was not good. There was considerable dehydration so salt solution was given subcutaneously. The Frede-Ramstedt operation under local anesthesia was done. The child went through the operation nicely. Vomiting ceased the next day. He is now four months old and you can see that he is in excellent physical condition.

Baby F., male, entered the hospital with the following history: Normal delivery, condition good. Breast fed and gained until three and one-half weeks old. Then vomiting started. This occurred four or five times a day. Part of the time it was projectile in character. The child was very restless. A marked peristaltic wave was seen and often this would bring on vomiting. The stools were small but normal in appearance. There was no temperature. The urine was diminished in quantity and the blood count was normal. The loss of weight was slight but steady. The child seemed hungry most of the time. X-ray four hours after the administration of the barium revealed about 50 percent retention in the stomach, but 24 hours later there was none. The mother was of a very nervous type and the child's illness seemed to increase the nervousness considerably. Soon her breasts were producing very little and it was necessary to add complementary feedings. Finally artificial feedings had to be used entirely. These feedings were thick cereal made with evaporated milk. Atropin was given by hypo before feeding. With this management the baby was able to keep most of the feedings, vomiting only once in every 24 to 48 hours. The dose of atropin was increased steadily and ten days

after starting treatment it was given by mouth in place of by hypodermic. A week after the cereal and atropin were started the weight curve started up and continued although at times it would be slight for a short while. It was necessary to continue the administration of atropin until the child was six months old. The boy is now 9 months old and his recovery is complete.

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## SYMPTOMATOLOGY OF ASTHMA IN CHILDREN

RAY M. BALYEAT, M.A., M.D., F.A.C.P.

Lecturer on Diseases Due to Allergy  
University of Oklahoma Medical School

HERBERT J. RINKEL, B.S., M.D.  
OKLAHOMA CITY

May we call your attention to the variations in symptomatology of asthma in children. In analyzing the histories that we obtain on children in the dispensary and our private clinic, we have been able to classify them into several groups. For the purpose of discussion in this paper we shall consider the symptoms of asthma under the following heads:

1. Chronic bronchitis.
2. Summer cough.
4. Perennial hay fever with asthmatic attacks.
5. Attacks of abdominal distress followed by asthma.
6. Typical asthma.

### CHRONIC BRONCHITIS

Probably the most frequent complaint made by the parents when they bring a child to the Clinic is that the child has chronic bronchitis. By this the parent refers to a more or less chronic cough productive of a glary white or frothy mucus. Occasionally these patients complain of pain along the costal margins, and less frequently they note upper retrosternal distress. The cough is productive, as a rule, but may be fairly dry. It is often described as a "tight cough", the patient improving rapidly as the cough loosens. Ordinarily acute cold has a tendency to increase the cough; and whereas the normal child would cease coughing after a cold in a few days, these children have a tendency to cough for a period of four to six weeks. We have found a number of patients in whom the chronic low grade bronchitis has produced typical chest de-

formity of a marked degree without either the physician, parents or patient realizing that the individual was an asthmatic. These patients are often considered to be tubercular, in spite of the fact that their chest findings and sputum tests are negative for tuberculosis. Case 1 illustrates the point in question.

CASE 1. D. B. R., age 20 years, was referred to the Clinic because of hives. On taking the history the mother stated that he had been a victim of chronic bronchitis for 17 years. On inspection we noted a typical barrel chest. On questioning the mother as to the occurrence of asthma she stated that to her knowledge he had never wheezed and that he had been examined because of his chronic bronchitis a number of times but the diagnosis of asthma had not been made.

On percussion the chest was hyperresonant. The lung excursion was somewhat limited. On auscultation typical squeaks and groans were heard over the entire chest.

*Discussion:* Here is a patient who has had repeated attacks of asthma, low grade in character, which over a period of years have deformed his chest. It is not commonly known that asthma may run such a silent course that both parents and physicians are unaware of the condition until there is a marked deformity of the chest. Patients who give a history of chronic bronchitis should be considered from the allergic standpoint as well as from the standpoint of other etiological factors in chronic bronchitis.

#### SUMMER COUGHS

Summer cough differs from chronic bronchitis only in that symptoms have a seasonal character. There is a history of a chronic cough which may start in May, June, July or August, depending on the locality, and continuing until frost. At times the cough is productive of the typical asthmatic sputum, or again the cough may be quite dry. The rule is that they are free of symptoms in the winter, at least this is true early in the disease. Occasionally these patients will have an acute attack characterized by severe cough, pain in the chest, and temperature, and a diagnosis of bronchopneumonia is made. However, in one or two days the patient is free of temperature and the chest is again normal on physical examination.

CASE 2. L. E. V., age 17 years, was brought by his mother to the Clinic because he had experienced a summer cough from the middle of July until frost during the past 4 years. At times his cough was productive of a fair amount of sputum, after which he would feel better for a few hours or a day or so, and he had been subject to one or two atypical attacks of bronchopneumonia during the past summer.

On physical examination typical asthmatic

rales were heard in the bases of the lung. There were no other findings of note.

*Discussion:* The history of the periodicity of the attack, the relief by frost, and the absence of symptoms in winter, at least early in the condition, together with a familial history of allergy and a history of allergic symptoms in the individual, should call attention to the possibility of specific hypersensitivity to pollen as a cause of seasonal summer cough, and this is all the more true when the period of cough corresponds to the pollinating period of various grasses and weeds.

#### PSEUDOBRONCHOPNEUMONIA

By pseudobronchopneumonia we refer to the patient who develops an acute cough with dyspnea, temperature and lassitude. On physical examination these children may have a temperature of 99 to 104° and the other findings will not differ from the true bronchopneumonia. Within 12 to 36 hours the condition has cleared up. The child is perfectly normal, running and playing, and apparently no worse for the attack of bronchopneumonia. This condition is illustrated by the following case.

CASE 3. Margaret U., age 8 years. This child was seen in the home and the mother gave us a history of the child being perfectly well until late the day before when she developed a cough and in an hour or so the temperature was 103°. There was a history of many similar attacks.

On inspection there was dyspneic breathing, a low grade cyanosis, a pulse of 120 and a temperature of 104°. There was a slight increase of fremitus over the right lower lobe posteriorally. Many coarse rales, associated with squeaks and groans, were heard. Other findings were negative.

The patient was seen in consultation with a pediatrician that afternoon and a diagnosis of bronchopneumonia was made. The next day the patient was free of temperature and cough and there were no physical findings of consolidation. Medication was ephedrine and adrenalin.

*Discussion:* We would not suggest that attacks of bronchopneumonia be considered allergic but where we deal with a patient who has a history of repeated attacks of bronchopneumonia that run an atypical course, the possibility of an allergic etiology must be considered, especially if there is a familial history of allergy. One may establish the allergic basis by the use of adrenalin and subsequent auscultation of the chest. It is certain that small doses of adrenalin would not change the breath sounds in a case of typical bronchopneumonia.

#### PERENNIAL HAY FEVER WITH ASTHMA

The symptoms of perennial hay fever,

that is, chronic nasal congestion, wet nose, sneezing, itching of the roof of the mouth, itching of the back of the throat, itching in and about the ears and the eyes, and occasionally watering of the yes, may be more prominent than the mild attacks of asthma that are often associated with it. It is a common thing for the mother to stress the symptoms of perennial hay fever and state that on occasions the infant may appear to be choked up. With this choking there is often a productive cough, and by physical examination the attending physician finds the typical musical rale of asthma, along with the coarse bubbling rale indicating the presence of mucus. As a rule these children give a history of taking cold easily, and inasmuch as the shock organ in these cases is the nasal mucous membrane as well as the bronchial tubes, frequent nasal colds would be expected. Some of these children will develop a cold every time they are exposed to a draft or a change in temperature. The diagnosis in this clinical form of asthma should not be difficult. The presence of all the classical signs of perennial hay fever along with the periodic attacks of dyspnea and cough are suggestive, and physical examination and sensitization tests will establish the diagnosis.

#### ATTACKS OF ABDOMINAL DISTRESS FOLLOWED BY ASTHMA

In a number of these children we obtained a history of an acute attack of abdominal distress which precedes the attack of asthma by 12 to 24 hours. The child often has some nasal symptoms along with the abdominal upset. The attacks usually last one to two days and are very definitely improved by the use of enemas or cathartics. The symptoms referable to the chest in these cases differ a great deal from the regular asthmatic. In some cases there may be the typical wheezing; in others there may be more or less dyspnea with cough.

CASE 4. Our patient, Rebecca H., age 8, is a typical case of this form of asthma. Her parents state that she has been subject to a number of attacks of acute indigestion followed by a croupy cold. By indigestion they refer to a crampy type of pain in the upper abdomen with some bloating and belching. Several hours later there may be one or two loose stools. There is definite relief from a bowel movement or emesis. Within 6 to 18 hours she manifests nasal symptoms and then becomes dyspneic.

Relief is obtained both from the abdominal distress and the chest symptoms by the use of adrenalin.

*Discussion:* There can be little doubt that the chain of symptoms illustrated here is due to one and the same thing, namely,

a specific sensitization to a food or foods. On eating the food the first shock organ will be the upper gastrointestinal tract. On absorption of the food there is a subsequent reaction in the nasal mucous membrane and in the bronchial tubes. This contention is established by the fact that the removal of offending foods relieves all three of the symptoms enumerated. In some cases the abdominal distress will be so severe as to warrant the diagnosis of appendicitis, and an operation may be advised.

#### TYPICAL ASTHMA

The least common asthmatic manifestation in children under 10 is the typical paroxysm. These children may be in perfect health and within a few minutes, without premonitory symptoms, start to wheeze, and there is marked dyspnea, occasionally cyanosis, and wheezing that is apparent to all who are about the child. After the attack has persisted for some time cough and sputum become evident, and after 12 to 48 hours the attack wears off. The child may then continue for three weeks to a year before a subsequent attack. The rule is, however, that these attacks become more frequent and of longer duration with each attack. There is a tendency for the cough to be prolonged after each attack.

#### CONCLUSIONS

1. Asthma in children presents a number of symptom complexes, such as chronic bronchitis, summer cough, pseudo-bronchopneumonia, perennial hay fever with daylight croup, acute abdominal distress followed by asthma, and the least common of all, true typical asthmatic paroxysms.

2. In determining the etiologic factor of chronic bronchitis the role of hypersensitivity must be considered. The family history and the history of other allergic manifestations in the individual, and the signs and symptoms of hypersensitivity, will aid in establishing the etiology.

3. Summer cough should be considered from the allergic standpoint in every case.

4. Repeated attacks of bronchopneumonia which run an irregular clinical course may exist on an allergic basis.

5. Perennial hay fever with asthma should present no diagnostic difficulties.

6. Attacks of asthma following acute abdominal distress are due as a rule to food.

7. The typical asthmatic attacks are the least common in children.

## ENDOCRINE CLINIC\*

HENRY TURNER, M.D.  
Children's Hospital  
OKLAHOMA CITY

I. DIABETES INSIPIDUS  
II. LAURENCE-BIEDL SYNDROME

I am presenting two interesting cases this morning, one of which is not uncommon and is typical of the syndrome; the other case is considered very rare, only 35 cases having been reported in the literature. I do not think it wise to present unusual cases to students, as a rule; because you have enough to do if you acquaint yourselves with the more common conditions. However, the rare cases gen-

Family history is essentially negative. No other member of the family is obese.

*Past History:* He was a normal, full term baby who walked, talked and developed teeth at the usual age. He had the usual diseases of childhood, including measles and whooping cough; but no scarlet fever nor other severe infections. He has always been overweight. The parents say that he has always drunk much water and has always been hungry, but that these seemed to increase following whooping cough at the age of six years.

*Present Illness:* Admitted to Children's Hospital November 18, 1929, complaining that the symptoms of polydipsia, polyuria and polyphagia have been increasing the past three years and recently have been of

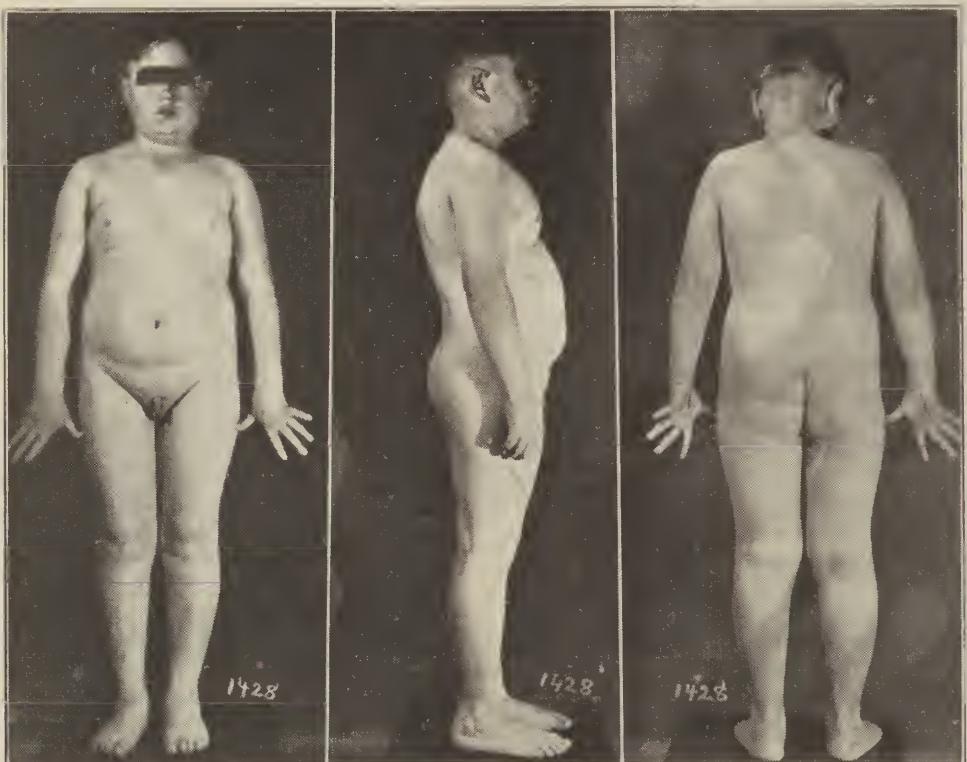


FIGURE I

Note the generalized type of obesity with definite shoulder and pelvic girdling, mons veneris shelving and genital hypoplasia.

erally produce permanent mental pictures which are never forgotten, and I trust you will remember the one I will show you today.

The first case (Fig. I) is a boy, aged 9 years, who was admitted to the hospital in November, 1929, complaining of excessive thirst, voracious appetite, frequency of urination, and overweight.

sufficient severity to prevent his getting proper rest at night.

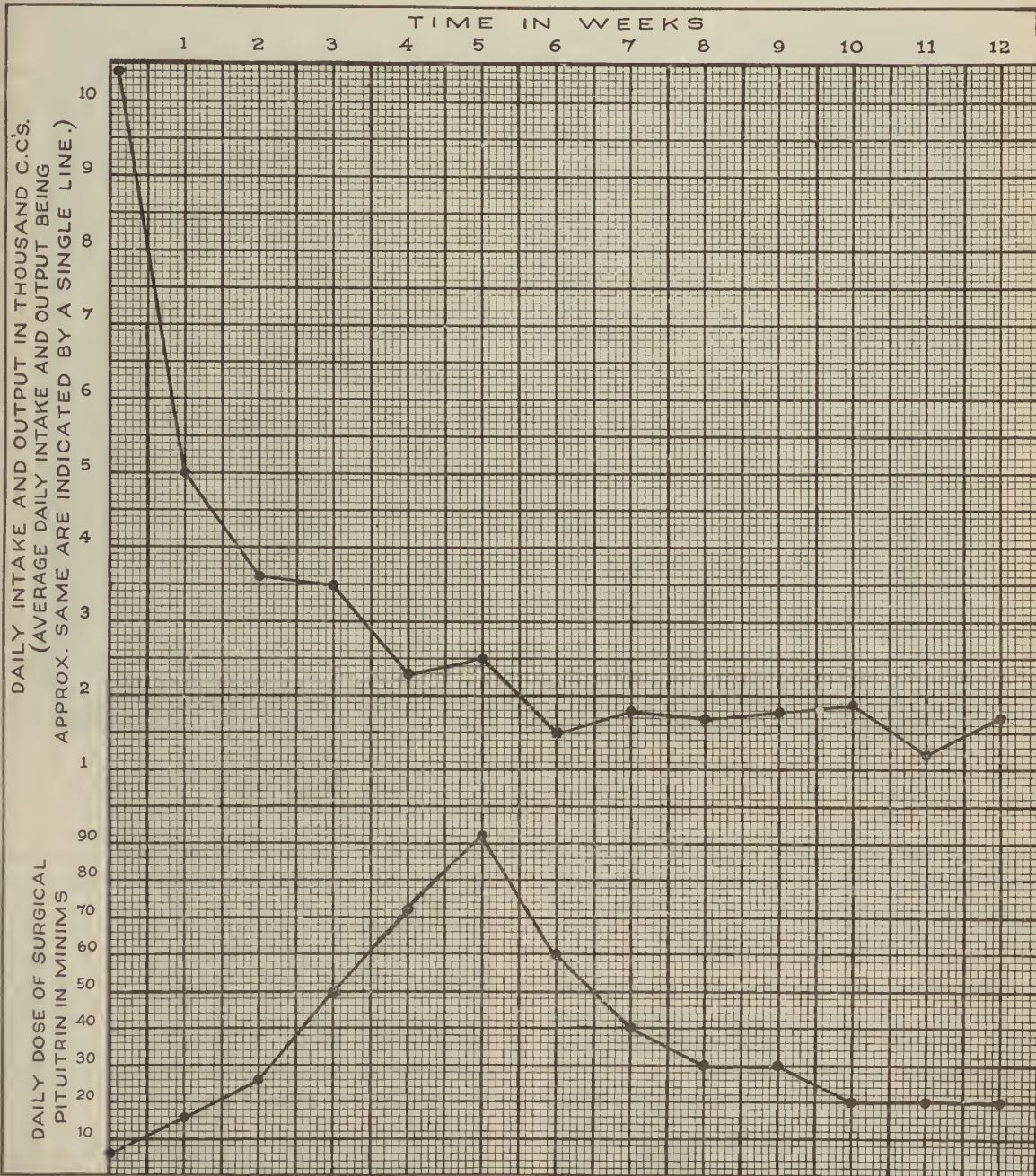
*Physical Examination:* Physical examination reveals a well developed youngster of nine years. His height is 52 inches (116.5 cm) and his weight 105 pounds (48 kgs.). He is 54% overweight. He is of normal temperament and responds intelligently to questions. You will notice that he is obese and that the panniculus is rather generalized; but there is a definite

\*From the Department of Medicine University of Oklahoma School of Medicine; Medical Service; Crippled Children's Hospital.

girdling at the shoulder and pelvis. He has a feminine figure. There is just a suggestion of swelling at the ankles, which does not pit on pressure. There is also some supraclavicular fullness. The skin is dry, and remarkably so, over the lower extremities. The hair is neither fine nor coarse and appears lifeless. There is no pubic nor axillary hair and no beard. The teeth are all present, in good alignment and of perfect structure. He has a moderate hypoplasia of the genitals. The left testis is undescended, but may be palpated in

the canal. The blood pressure reading is 100 systolic, 84 diastolic, and the heart rate 80 per minute. The temperature is subnormal most of the time. There are no signs or symptoms referable to other systems.

**Progress:** Upon admission, he was placed on regular routine diet, with no restriction of fluids. It was observed that his night intake and output of fluids was sometimes greater than during the day. A pitcher of water was kept by his bedside and he would ask to have it filled sev-



eral times during the night, and his sleep was broken by the necessity of frequent voidings. His average intake (Fig. II) for 24 hours was 10,800 c.c., and daily output 10,530 c.c.

He was given surgical pituitrin, intramuscularly, in increasing daily doses, without restriction of diet or fluids. His intake and output decreased to about 5000 c.c. after two days, and to 1400 c.c. on the eighteenth day. The maximum dose of pituitrin (S) given in 24 hours was 74 minims, which produced an intestinal reaction. This dosage was gradually reduced to 20 minims daily, which controlled his symptoms. Later, because of the suggestive myxedematous pads and dry skin, and because of the Froelich's syndrome, antuitrin, 1 c.c. daily, and thyroid extract, in gradually increasing doses, were added.

He was discharged from the hospital February 23, 1930, completely relieved of all symptoms and weighing 84 pounds, a loss of 21 pounds since admission. After returning home, he did not take any pituitrin for a few days and all of his original symptoms returned. He was then given one c.c. of pituitrin (S) daily at bedtime. This has been continued for the past six months with complete relief of symptoms and no increase in weight.

Dr. T: "Mr. S., what is your impression of this case?"

Student: "Diabetes insipidus."

Dr. T: "Yes, based upon the history of polydipsia, polyuria and polyphagia, but you would not make a final diagnosis until you had examined the urine and found it free of sugar." "Mr. B., does this boy's physical appearance suggest anything to you?"

Student: "He is obese, and the fat seems more prominent about the mammae and abdomen."

Dr. T: "Though the fat is rather generalized and of the type usually associated with hypothyroidism, the increased deposition about the shoulder and pelvic girdles suggests a pituitary dysfunction, which fits in well with his symptoms."

The laboratory studies are as follows:

*Urine:* Specific gravity ranges from 1000 to 1004. No trace of sugar nor other pathological constituents.

*Blood:* The count is normal. The Wassermann reaction is negative. The sugar tolerance test shows 111.1 mgms. while fasting, 224.6 mgms. one hour after glu-

cose and 95.2 mgms. the second hour. There is no spilling over in the urine.

Basal metabolism test is minus 15%.

X-rays of wrists and elbows show normal osseous development for age. X-ray of sella turcica reveals no apparent pathology.

*Discussion:* I have presented a typical case of diabetes insipidus, in which there is evidence of bilobar pituitary hypofunction and secondary hypothyroidism.

The history of increase in the symptoms after an attack of whooping cough is not without interest. It has been shown by many investigators that in the floor of the third ventricle, with its dependent tuber and infundibulum are the centers of fat and water metabolism. These centers are quite vulnerable to infections. Thus we see many cases of obesity, diabetes insipidus, somnolence and so on following scarlet fever, typhoid and encephalitis. In cases showing a tendency toward symptoms such as this case it is reasonable to assume that the toxins of whooping cough increased the symptoms.

The fact that this boy tolerated 75 mms. of surgical pituitrin before intestinal muscular reaction is sufficient evidence of a posterior lobe pituitary deficiency. Is the fact that 1 c.c. of pituitrin was finally sufficient to control the symptoms evidence of activating a functionally deficient, or "lazy gland", to near normal activity? I think it is. I have observed this to be true in the treatment of some cases of hypothyroidism. Possibly the thyroid and antuitrin administered after control of symptoms partially corrected the existing endocrine imbalance to where the smaller doses of pituitrin were sufficient. This case was treated with surgical pituitrin (Parke-Davis & Co.), injected hypodermically. Many cases have been reported in the literature, by other authors, in which the pituitrin was administered intranasally by means of tampons and nasal spray with apparent success. Rosenberg<sup>1</sup>, of Berlin, and others on the continent report satisfactory results procured with powders prepared from extract of the posterior pituitary lobe used as snuff. I have used the nasal spray method and, while the results may not be quite so striking as those obtained by hypodermic injection, certainly the convenience and pleasantness of the former should make it the method of choice.

There have been two other cases of diabetes insipidus in the hospital within the

past few months which have reacted to pituitrin much the same as this boy. It will be interesting to continue to keep them under observation and note their progress.

<sup>1</sup>. Klinische Wochenschrift, No. 4, 1930. Abstr. Ars Medici 8:304.

#### LAURENCE-BIEDL SYNDROME

The second case (Fig. III) I will demonstrate illustrates an unusual condition. It is of interest because of its rarity and the encouraging response this boy has made to treatment.

sat up at six months, walked at eighteen months, and said a few words at this age. Dentition at one year. He was a good baby and always easily controlled. He entered school at the age of six but never succeeded in passing the third grade. He never took much interest in other children or in play. His appetite has always been good, though not voracious. He was always large but began gaining more weight at the age of six and his knees began to bend inward, producing a genu valgum which prevented his walking any distance.



FIGURE III

Note deformity of head, peculiar distribution of panniculus, the supernumerary digits, extreme genu valgum with bilateral dislocation of both patellae and genital hypoplasia.

His chronological age is thirteen years and his mental age seven years.

**Family History:** The mother states he was the first born of four children. He has one brother who is normal in every respect. He had twin brothers, one of which was still born and the other died at the age of one month. There is no history of any similar condition in the family.

**Past History:** He was delivered normally at term and it was observed that he had twelve fingers and twelve toes, and that his head was peculiarly shaped. He

**Present Illness:** With the exception that locomotion is becoming more difficult and the mental retardation more evident, there are no recent symptoms which differ from those mentioned in the past history.

**Examination:** When admitted to the hospital December 2, 1929, he was extremely obese, weighing 180 pounds. The fat, though generalized, is of a peculiar type; that over the abdomen being irregular in contour. There is a tendency toward shoulder and pelvic girdling and marked post cervical fat pads are present. The

breasts are feminine and there is a mons veneris shelving. The genitals are infantile. The skin over the face and trunk is soft and velvety, but over the arms and lower extremities it is dry, rough, and myxoedematous. There is no hair on the face or body, but normal growth on scalp.

His hands are broad and the fingers short, thick, tapering and deformed. Both thumbs show evidence of the terminal phalanges dividing in an attempt to form

The skull is elongated in its vertical axis, forming the so called "turret head." This deformity of the skull produces a flattened forehead and almond shaped eyes. The pupils react to light and accommodation, and the eye grounds are normal. The nasal bridge is sunken and the alae flattened, resembling the retrousse nose of the cretin. You will observe the lips are thickened and, though the tongue is not enlarged, he keeps his mouth open



FIGURE IV

Note supernumerary digits, the shortening of the middle phalanges, the two separate proximal phalanges and fusing of terminal phalanges of each thumb, and the elongation of the epiphyses of the first phalanx of each second finger.

two thumbs on each hand. There is a sixth finger on each hand. The feet are short and thick and resemble those of an elephant. There are six webbed toes on each foot. You will note it is almost impossible for him to walk because of the extreme knock-knees and bilateral dislocation of both patellae.

and the tongue slightly protruded. The teeth are not well formed and are in mal-occlusion and mal-position, and the upper central and lateral incisors have not appeared below the gum margin. Superficial and deep reflexes are present and normal. The blood pressure varies from 102 to 110 systolic with normal pulse pressure.

The laboratory reports are as follows:

*Urine:* Normal output of 1022 specific gravity. No pathological constituents.

*Blood:* Count normal. Coagulation time 4 minutes. Wassermann, negative.

*Sugar Tolerance:* 97.5 while fasting, one hour after glucose 111 mgms. and at

sence of convolutional markings. The anterior fossa is flattened and the sella turcica a mere depression with no evidence of the clinoid processes.

*Hands (Fig IV):* Ossification normal for age. There is a supernumerary digit attached to the soft tissue adjacent to each little finger. The middle phalanges of all



FIGURE V

Note the six well formed metatarsal bones and digits of each foot, the shortening of the middle phalanges of each digit and elongation of proximal epiphyses of second and third toes.

the end of two hours it had fallen to 76.5 mgms., a very marked increased tolerance.

The roentgenograms are very interesting. You will see in this X-ray of the skull the abnormal contour with unequal densities of the flat bones and the pre-

fingers are flattened and shorter than normal. There are two distinct and separated proximal phalanges present in each thumb and two terminal phalanges which have fused. There is a widening and elongation of the proximal epiphysis of the

first phalanx of the second finger of each hand on the radial side. This is also present in a more marked degree on the corresponding digits of both feet and the lower epiphyses of the femora.

**Feet (Fig. V):** There are six well formed metatarsal bones with corresponding phalanges. The second metatarsal has a triangular base and apparently articulates with the first and second cuneiforms. The middle phalanges are flattened as in the fingers. The second proximal phalanx of the second and third toes show the same deformity as the fingers.

**Knee Joints:** There is an overgrowth and elongation of the medial halves of the lower epiphyses of both femora producing a double genu valgum with bilateral outward displacement of the patellae.

**Discussion:** Dystrophia adiposogenitalis, polydactylism, syndactylism and retinitis pigmentosa, associated with mental retardation and deformity of the skull are symptoms of the Laurence-Biedl syndrome. This syndrome was first described by Laurence and Moon in 1866. These authors reported four cases in the same family who exhibited obesity, infantile genitals, mental inhibition and retinitis pigmentosa. Sometime later Biedl reported three cases, two of which occurred in the same family. These cases showed deformities of the skull, polydactylism and syndactylism in addition to the findings described by Laurence. Harvey Beck<sup>1</sup>, of Baltimore, in 1929 in a review of the literature reported 35<sup>2</sup> cases, including two of his own. He states that all the signs and symptoms may not be present and cites the absence of polydactylism and syndactylism in Laurence's cases. In the case presented today there are no retinal changes. It was my pleasure to have Dr. Beck see this case while on a recent visit here and he concurred in the diagnosis and treatment.

The etiology of this peculiar syndrome is still in doubt, but the majority of those who have studied it seem to favor the endocrine theory. Biedl does not believe it to be directly a pituitary disease, but that it is probably influenced by the failure of hypophysial secretions to reach certain centers in the hypothalamus. Bardet, quoted by Beck, believes it to be due to a lesion affecting both lobes of the hypophysis during the period of embryonic or foetal development. Lesions of the floor of the third ventricle may influence the symptoms, but we know that this part of the mid brain is directly connected to the pit-

uitary by various fibres and tracts through its tuber and infundibulum. Should it be, as Bardet believes, a lesion affecting the pituitary during embryonic development, why should it not affect the thyroid simultaneously; as we know the thyroid and anterior lobe of the hypophysis to be of the same embryological origin. Because of the fact that Froelich's syndrome and mental retardation are constantly present and organotherapy has proved very beneficial in the majority of cases, it seems logical to assume this to be a hypophyseal dyscrasia with a secondary thyroid deficiency.

**Course and Treatment:** Upon admission to the hospital he was placed on the regular routine for a few days observation. His fluid intake and output were within normal limits, but his appetite was rather voracious. He was inclined to keep to himself and seemed to have no desire to enter into play and other activities of the children. He scored 2.7 in the Standard achievement test in reading and ranked third grade in arithmetic by the Woody-McCall test. His intelligence quotient was 50.

Thyroid in gradually increasing doses was ordered and both anterior and posterior lobe pituitary liquids were given hypodermatically. The surgical pituitrin was given in increasing doses and the daily dose reached 56 minims before a reaction took place. This reaction was a vasomotor one evidenced by pallor and perspiration. No intestinal cramping was complained of. The dose was reduced to 40 minims daily which he has tolerated quite well. The daily amount of antitritin given is 1 c.c. Thyroid, grains 5 daily, increasing 5 grains weekly was ordered, but through some misinterpretation of orders this was increased daily and for several days he received 70 grains of the desiccated gland daily. This produced a transient hyperthyroidism with elevation of the pulse to 140 per minute. All signs of this disappeared within four days after the discontinuance of the thyroid. This is interesting in that it demonstrates the large amount of thyroid tolerated by this boy and how quickly some cases recover from the toxic effects of the drug. His tolerance has been established at 25 grains daily. He has received this amount continually for over a year except during a few days when it was discontinued during a slight cold and again following the operation when his leg was straightened. Because of his obesity he was given a reduction diet of 1400 calories

and his weight declined fifty pounds in five months.

After a few weeks treatment he became more attentive to things in general. He showed an increasing interest in the other children and a desire to enter in their play. Miss O'Brock, of the occupational therapy department, reports that he was very sensitive about his inability to do the things other children do, and that special efforts were made to encourage him in all of his attempts. His progress in this department has been remarkable. He now spends much time in being sociable and in making things of his own design and is much interested in decorating the wards and workshop.

His school work has improved but this is not as evident as his progress in occupational therapy, due probably to his greater fascination for the latter. He has advanced .3 of a grade in reading and almost a whole grade in arithmetic. His I. Q. has risen from 50 to 63 the first months and to 76 at the end of a year.

His response to endocrine treatment is encouraging, his I. Q. having risen from 50 to 76 and his general demeanor and increasing interest in everything about him so marked that it was decided to attempt to correct his knock knees, which almost completely incapacitates him. Dr. W. K. West, of the orthopedic department, examined him and decided that because of the marked overgrowth and elongation of the medial epiphysis of the femora it would be necessary to remove a triangle from the shaft and break the femur. This was done with excellent results, though the bone was slow in uniting. Dr. West states that the bone was very soft and spongy. Dr. C. E. Rountree has recently operated the other leg with apparent excellent correction of the deformity. It is still in the plaster cast.

*Comment:* I have demonstrated a case of Laurence-Biedl syndrome which has responded to endocrine therapy. His mentality has increased and his conception of life in general has improved. He has lost 50 pounds in weight, and the orthopedists have corrected his deformed legs. Instead of the obese, moronic and physical invalid who entered the hospital a year ago we hope to send him home soon able to walk

and with sufficient mental power to be able to help his father, mother and himself and not be a burden to society.

1. *Endocrinology* 13:375, 1929.

2. Since this was written one new case has been reported by McCrae and Weiss, *Med. Clinics of North America*, January, 1930, and another by H. Lisser, *Endocrinology* 13:533, 1929. This makes a total of 38 cases reported to date, including my own.

1200 North Walker St., Osler Bldg.

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## CAUSES OF RESPIRATORY OBSTRUCTION IN INFANTS AND CHILDREN

L. C. MCHENRY, M.D.  
OKLAHOMA CITY

Respiratory difficulties in infants and children may be due to a number of causes. As a laryngologist, I shall not attempt to discuss the dyspnea that accompanies severe illnesses with high fever, profound toxemia, etc. I shall merely make brief mention of a variety of conditions which cause difficulty by definite mechanical obstruction of the air passages. These causes may be grouped under four headings:

1. Anatomical or structural peculiarities.
2. Causes due to infection.
3. Foreign material in the air passages.
4. Constitutional conditions.

1. *Anatomical or structural peculiarities:* Enlargement of the thymus gland is the most often considered anatomical abnormality causing dyspnea. This is both diagnosed and treated by the X-ray. The typical wide substernal shadow is well known. More definite evidence of tracheal compression may be obtained by a lateral film of the neck and upper thorax. This must be taken with the arms behind the back and during inspiration. During expiration there is some normal distortion of the tracheal shadow which may be misleading. In positive cases there will be a definite backward notching of the anterior wall due to pressure backward by the thymus.

Congenital laryngeal stridor presents the typical symptoms of laryngeal obstruction. The difficulty is predominantly inspiratory, with wheezing or stridor and with indrawing at the suprasternal notch and xiphoid on inspiration. The cry may be clear and normal and expiration not dif-

ficult. This condition is due to an exaggeration of the infantile type of larynx, with a long epiglottis which folds upon itself and a general lack of firmness of the tissues at the upper orifice of the larynx. The difficulty is greater when the child is excited, struggling, etc., because the increased inspiratory effort causes a greater collapse or folding together of the upper part of the larynx. The stridor is due to vibration of the lax folds of tissue. These cases usually recover spontaneously as the child develops. Occasionally tracheotomy is necessary to save life. Intubation is not indicated as the introduction of a foreign body (the intubation tube) causes irritation and swelling and only complicates the condition.

Congenital webs of the larynx and trachea are occasionally seen. Those that do not cause marked obstruction are usually discovered and treated after the child is several years old. Those which do cause marked obstruction are more often reported from the autopsy table. When discovered these may be either excised or the obstruction dilated by bouginage.

Papillomata of the upper air passages may occur at any age and may even be congenital. They are by far the most common neoplasm of this locality in childhood. As with other laryngeal conditions in children under four or five years of age, they can be diagnosed only by direct laryngoscopy. Anatomical as well as psychological difficulties prevent getting a view of the larynx of small children by the indirect method. Direct laryngoscopy can be done without anesthesia and without danger in even very seriously ill infants. The treatment for papillomata is removal. They tend to recur, but, if successive removals do not include any of the normal tissue, perfectly normal function is eventually obtained.

2. *Causes due to infection:* Acute upper respiratory infections frequently cause obstruction of the air passages. Croup, which we sometimes describe as influenzal laryngotracheitis, is well known. We have all seen children with such large tonsils and adenoids that the pharynx was almost completely closed when they had an acute infection. There is occasionally obstructive swelling of the pharyngeal tissues in other severe anginas such as scarlet fever. Treatment in the above conditions rarely needs be directed specifically toward the obstruction.

When we see a child with labored, noisy breathing, aphonia or hoarseness and with more pronounced difficulty on inspiration we think immediately of laryngeal diphtheria. Fortunately this condition is rapidly becoming less common, due to the widespread immunization of young children, and much less dangerous due to the prompt use of antitoxin. In the absence of membrane from the mouth or pharynx, laryngeal diphtheria can be definitely diagnosed only by smear and culture directly from the larynx and these do not always give conclusive results. In children they can only be obtained by the direct laryngoscope. Where a definite diagnosis cannot be made, and especially where there is a history of exposure, antitoxin should be given on suspicion and without delay. Intubation may be necessary. Tracheotomy is safer unless someone trained to replace the intubation tube is constantly on hand. The tracheotomy cannula cannot be coughed out and secretions and membrane may be removed through the tracheotomy by suction. An intubation tube should never be left in the larynx longer than two weeks and preferably not longer than one week as it will cause scar formation and later cicatricial stenosis.

Cicatricial laryngeal stenosis is commonly caused by too long sojourn of an intubation tube or by faulty tracheotomy. Occasionally it follows severe laryngeal infections and injuries with neither of the above factors. The so-called high tracheotomy, i. e. above the second tracheal ring, will cause scar formation and stenosis of greater or less degree in a high per cent of cases. It is justified in that it is often life-saving in an emergency but should be replaced by a low tracheotomy in all cases where the tube cannot be removed within a day or so. The treatment of cicatricial laryngeal stenosis is very difficult, covers a long period of time and rarely results in good voice function though good respiratory function may usually be eventually obtained.

A fairly common condition that is frequently first called to your attention by the dyspnea it causes is retropharyngeal abscess. The main difficulty in diagnosis is usually that the doctor does not think of it. Palpation of the posterior pharyngeal wall with the finger makes the diagnosis. Treatment is drainage, as in any other abscess and incision should be done without anesthesia and with the patient in extreme Trendelenburg position to pre-

vent aspiration of the pus into the larynx and trachea.

3. *Foreign material in the air passages:* Foreign bodies may cause very marked respiratory obstruction or may cause none at all. In many cases the history is so definite that we have only to verify the diagnosis that the parents have already made. Metallic foreign bodies may always and non-metallic ones many times be diagnosed by the X-ray. Occasionally a definite diagnosis cannot be made until the foreign body is seen through the bronchoscope. Vegetable foreign bodies, especially peanuts, cause trouble out of all proportion to their size. They cause a rapid, very severe inflammation of the tracheobronchial mucosa. This is accompanied by the production of a great amount of purulent secretion and by profound toxemia. A piece of peanut in a small baby's bronchus may cause no symptoms at all for an hour or two after the initial coughing spell and then cause death within six to eight hours.

Other foreign materials besides discrete foreign bodies may cause respiratory obstruction.

A common ingredient of "baby powders" is stearate of zinc. This may be fine for the skin but when it is inhaled it causes severe inflammation of the trachea and bronchi and may be rapidly fatal. Removal of all the powder possible and of the profuse secretions by suction, either through a laryngoscope or through a tracheotomy wound, may be of great assistance.

Acute chemical burns of the throat from various things (lye, acids, etc.) may cause acute respiratory embarrassment, and, as they heal, scar formation may cause deformities of the esophagus, larynx, hypopharynx and mouth. In the acute obstructions tracheotomy and gastrostomy are often necessary. Treatment of the chronic cicatricial conditions requires a long period of time and good functional results are very hard to obtain.

4. *Constitutional conditions:* Bronchial asthma does occur in infants though fortunately not so frequently as other allergic manifestations. Angioneurotic edema involving the larynx may occur and if not accompanied by edema elsewhere may be extremely difficult to diagnose. The use of adrenalin in proper dosage usually relieves immediate symptoms. The discovery and elimination of the cause of the allergic condition may require expert study.

Overdosage of narcotics such as codein and morphine in infants may give rise to respiratory difficulty due not only to the effect upon the respiratory center but to extreme relaxation of the laryngeal muscles. This relaxation allows the upper laryngeal aperture to collapse on inspiration just as in a case of congenital stridor. Treatment lies in counteracting the effect of the narcotic by stimulants, etc.

604 Medical Arts Building.

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## CHRONIC DISCHARGING EARS AS A MENACE IN CHILDREN

THEODORE G. WAILS, M.D.  
OKLAHOMA CITY

More attention is being paid by the general medical man to the chronic discharging ears in children. These ears when not acute enough to produce definite septic signs, are still foci of infection and may thus explain occasional fevers, gastro-intestinal and respiratory indispositions. The continuous discharge of pus or mucus down the eustachian tube acts as a pharyngeal, tracheal or bronchial irritant, with a resulting cough, bronchial spasm and later bronchitis and bronchiectasis. It has been long known that many bronchitis and bronchiectasis cases were the result of the upright position of the human animal allowing the discharge of a chronic sinus infection to drain downward into, and irritate the bronchial tree. It is now also known that this may result from a discharge down the eustachian tube as well.

The cough reflex between the external auditory canal and the muscles of expiration by way of the tenth nerve is well known, and explains many chronic coughs, otherwise unexplainable. I have seen a chronic unproductive cough of months duration stopped by removal of a hardened plug of cerumen from the ear canal. Either a reflex cough or an actual bronchitis may be produced by a chronic discharging ear.

Many of the diarrheas of infants, result from untreated mastoiditis and it is now being recognized by the child specialist in routine consideration of these conditions.

On account of the frequent dehiscence of bone in the sutures of the three portions of the temporal bone, these infections easily gain admittance into the cranium or into the lateral sinus with resulting menin-

gitis, abscess, or general septicemia. At operation, these ears more often than not, show a rotten abscess lying deep in Trautman's triangle with the exposed dura of the middle fossae above, the lateral sinus as the external boundary, the cerebellum behind, and the facial nerve in front. Many complications may arise from entrance of pus into these structures. The occasional discharge of pus through the tortuous passage composed of the antrum, attic, middle ear and eustachian tube, is the only avenue of escape. The occasional headache, irritability, and vomiting of these children, lightly passed over as being gastro-intestinal in origin often are due to this extra-dural abscess. When the discharge is of long standing, fetid, thin and yellow or green, the above pathology is practically always present and constitutes a serious menace to life as well as health. This type is practically always found in the chronic discharging ear, following scarlet fever or measles. An ear with a mucoid discharge, not many months old and not too fetid, will often clear up upon removing the tonsils, and carefully clearing away the lymphoid and adenoid tissue from around the eustachian tube, thus allowing good two way drainage of the middle ear. If this discharge is of long standing, thin in appearance, considerable odor, and other evidences of bone destruction present, it must be considered dangerous to life and health and the deep mastoid abscess should be eradicated.

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## THE CRYING INFANT

CARROLL M. POUNDERS, M.D., F.A.C.P.  
OKLAHOMA CITY

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Crying is a peculiar physiological reflex that is well developed at birth. It usually accompanies the first breaths of the newborn and conveys the information that the infant is, to a certain extent at least, normal and healthy. Fundamentally it is the individual's chief agency of protection. It is excited by practically all new sensations or experiences, as touching, handling, bathing, changing positions, lowering the surface temperature, etc. There is a certain amount of crying during the earlier days of life, regardless of the state of comfort. It is probable that this is beneficial, accompanied as it is by the deep breathing, the general muscular contractions and increased metabolism.

At an age in life when subjective symp-

toms are comparatively few crying furnishes the most common and constant evidence of trouble. It is nature's means of bringing regularly and forcibly to the attention of the mother or attendant the information that something is amiss. It is a symptom that is likely to persist and command attention until the proper remedy is found and applied. Before this can be done it sometimes becomes a factor that is extremely distressing to the parents or nurse. Even the doctor is frequently baffled and sometimes exhausts his resources in attempting to locate and correct the trouble. I am speaking here of the baby that cries for long periods of time, sometimes almost continuously day and night.

The interpretation of the cry is not always easy. Yet it can have a serious bearing on the child's welfare. A considerable amount of observation and study is often necessary in order to arrive at any sort of definite conclusion. No attempt is made to attach any diagnostic value to particular types of crying but close observers may be able to tell some difference between the cry of hunger, pain or want of attention. The commonest causes of persistent crying in early life are:

1. Hunger.
2. Gastro-intestinal discomfort.
3. Want of attention.
4. Pain, illness or discomfort from other causes.

Crying from hunger is not uncommon during the first few weeks of life. It is more frequent in the breast fed than in the bottle fed baby. It may begin during the first two or three days but is more apt to start sometime during the third week. This is when the mother begins to be up and about her household duties, subjecting herself to fatigue and worry. The baby begins to be cross during the afternoons and evenings and fails to sleep as it should. It begins to cry more and more and is quieted with difficulty. Constipation is common and there is seldom any vomiting. Things grow worse until it becomes a routine for the child to cry a good portion of the afternoons and often far into the night while distracted parents try all the known colic remedies. The mornings are usually quite peaceful. The mother has a sufficient amount of milk during the early part of the day. As the day goes on and she becomes tired the emptied breasts do not refill so readily and the sup-

ply becomes inadequate. The crying is a normal reaction to hunger. Complementary feeding is the remedy. Under the same circumstances many babies not only have insufficient quantities of food but the milk from a tired nervous mother causes a certain amount of gastro-intestinal discomfort. There is evidence of considerable distress and there may be vomiting with loose bowel movements. Complementary feeding (especially with a high protein milk) generally relieves both the hunger and cramping. And there are babies that are hypertonic. They do a certain amount of vomiting and have gastro-intestinal distress on any food. In addition to seeing that they get sufficient nourishment they must be given large enough amounts of atropine to relieve the hypertonic musculature of the gastro-intestinal tract. Plain indigestion is seen mostly in bottle fed babies who are on unsuitable formulas or in breast fed babies where there is an abundance of milk and the nursing is too frequent. There are frequent loose movements and a tendency to "spit up." The remedy is regular four hour nursing intervals for those on the breast and the changing to a proper formula for those on the bottle.

Spoiled babies learn to demand attention from fond parents and relatives. Left alone on the bed they cry vigorously for long intervals. When talked to, taken up, held in the arms or rocked the crying stops, they assume a satisfied expression or even begin to laugh and coo. The remedy is simple.

Crying is the most common symptom of pain and discomfort from any source. Unless a thorough investigation is made the exact cause of temperature and pain can be rather obscure. It is not uncommon to see a baby run a temperature for several days, sleep very little and cry a great deal at the same time presenting little evidence of trouble in the usual physical examination. Two conditions should always be kept in mind as possible causes—acute otitis media and pyelocystitis. Few conditions will produce so much discomfort as the former. Routine inspection of the ear drums should be the rule in all febrile conditions. Infections of the urinary tract are more common in females. The child is generally very fretful and changing the position often produces pain. The diagnosis and management of this condition cannot be entered into here. It is hardly worth while to mention such

commonplace things as open safety pins in the clothing, tight cutting bands, prolonged contact with wet and soiled diapers, etc.

As has been brought out, crying is a very important symptom and is essentially a protective measure. But it may become a serious factor in the management of the case and must be dealt with, once the diagnosis is made. It can greatly interfere with the child's progress. Quiet and rest are important factors in dealing with acute illness at any age. We seek to eliminate those things that increase the metabolic rate and make demands on the patient's energy. Crying is one of the greatest factors here. Vigorous crying will increase the metabolic rate 25% to 50%. Obviously, if the child is to be given every advantage this element must be controlled as far as possible. This is brought about by making it as comfortable as possible, either in the bed or in the mother's or nurse's arms. Children are usually happier at home among their accustomed surroundings than in the strange environment of a hospital. They should be treated at home unless hospitalization offers distinct advantages. Relatively few nurses have the knack of getting along amiably with sick children to whom they are strangers. So the mother should be allowed to take a hand in dealing with her child. Of course there are some mothers who are so nervous that their presence actually upsets the child and makes it worse. Individual cases must be dealt with.

Finally, a sick child should not be allowed to use up its energy by being restless, crying and constantly crawling around or climbing about the bed if a harmless sedative can be given. In nearly all cases this is permissible. The type and amount of sedative depends on the case. Many are sufficiently quieted by bromides. Aspirin is effective in many of the upper respiratory infections with fever. Small doses of Dovers powders give splendid results in the respiratory infections, especially where there is some earache. Proper doses of paregoric generally work when other things fail.

The point I have tried to bring out is this: Crying is one of the most valuable subjective symptoms in infancy and early childhood. Like pain in older persons, after it has served its purpose of calling attention to the trouble, it should be quieted and not allowed to interfere with the welfare of the patient.

## THYROID AND THE MENOPAUSE

LEILA E. ANDREWS, M.D.  
OKLAHOMA CITY

There is doubtless no part of medicine that has received more study, and likewise more speculation, than the glands of internal secretion. Their intimate relationship has long been recognized, yet, with the wealth of literature at hand, and with the vast amount of research that is now going on, we must admit that there lies hidden in their physiology, some of the most intricate and elusive problems of medicine.

There are three periods of stress in the normal life-cycle of woman:

1. Puberty.
2. Pregnancy.
3. The menopause.

These have to do with the physiology of the ovary, yet, each phenomenon does not concern the ovary alone, but the other glands as well.

It is the purpose in this paper to discuss the menopause, with the changes, particularly referable to thyroid and ovarian function.

Wherever there is highly specialized function to be performed, nature always provides an adequate system of blood supply to meet the demands of highly complex cells. This rule is exemplified in both thyroid and ovary. Rich in blood supply to both stroma and parenchyma, there is in each gland a most elaborate capillary network to the epithelium of the acini and Graafian follicles—a sufficient blood supply to provide for growth, development and secretion throughout the life of the individual. Co-existing with the capillary network, there is likewise a network of nerve supply from the sympathetic, through which the glands are all so interdependent. Lymphatic spaces richly surround parenchymal epithelium, having an important role in the elaboration of both colloid and luteum.

If we desire an understanding of the disturbances that give rise to some of the troublesome symptoms of the menopause, we must go back to the histology of the ovary and determine the causative factors that had to do with changing the normal histology into pathologic structure.

If the normal gland-equilibrium could be maintained, this period of life should be

passed over, with little notice, except for amenorrhea, for nature should be able to accomodate itself through the sympathetic nervous mechanism, to the lack of restraint which the luteum exerts upon the thyroid.

There are a number of variations of thyro-ovarian disturbance, but, due to the necessarily short time for discussion, I shall briefly consider that type of ovarian dysfunction in which we note some of the usual symptoms and physical signs of increased action of the thyroid.

Aside from the changes that take place in blood vessels in all parts of the body, with increasing years, what changes go on in the ovary to interfere with normal lutein development, thus producing premature changes of the organ before nature has accommodated herself to the same extent in other glands?

I believe that infections play the greatest role in etiology of sclerosis of blood vessels, and I believe that to sclerosis we must attribute lack of function. If Graffian follicles have a lack of blood supply, and if the stroma receives less blood through thickened vessels, gland activity will be less, nerve impulses less, and lack of function will soon result.

Addison, in 1885, recognized the association of tuberculosis with the disease of the suprarenal glands that bears his name. Tuberculous is a disease of childhood. We are told by pathologists and bacteriologists, that the capillaries of the body are affected, and that once in circulation in the blood, the insult from the inflammation and resulting toxins formed, is expressed as *injury* to the tiny capillary walls. Injury means epithelial replacement with connective tissue. The infectious diseases of childhood, through the same manner, damage delicate blood vessels, and thus cause resultant changes in their walls. Typhoid fever, influenza, and any infection is capable of likewise bringing about these reactions and changes. In later life, causes of interference with normal physiology may be found in the inflammatory diseases of the uterus, tubes, appendix, etc., either directly affecting the ovary, or indirectly by interfering with its normal blood supply. We can, in this way, explain the sclerotic ovary, an organ made up of connective tissue, which has arrested the normal evolution of the Graafian follicle, and prematurely taken out of the gland system, the secretion from corpus luteum.

A careful and painstaking history of our patient, particularly the early history before puberty, noting particularly the diseases that could have bearing on the etiology of ovarian disease, would give a better insight into the disturbances of this decade of life that has been so little understood and appreciated heretofore. I believe that a better knowledge of preventive medicine, and its application in childhood, will enable us to indirectly, but more successfully relieve this type of gland disturbance.

I have selected the following case, because in its study several interesting points can be brought up for discussion.

Miss B., age 44, a single woman, school-teacher, came in for examination on June 26, 1930, with the following complaints: nervousness, a feeling of trembling all over, palpitation of the heart and heart consciousness, insomnia, despondency, weakness, loss of 20 pounds weight, and profuse perspiration, especially on exertion. The patient was the fourth of twelve children. She had the usual diseases of childhood, and typhoid fever at fourteen years. First menstruation period at 11; normal throughout, except for the last several months, periods gradually grew less in amount. In December of last year she had a severe attack of influenza, after which she never regained her normal health. Her nervousness and sleeplessness became so marked, that in January she gave up work and went to a clinic in a distant city for examination. They found, what they told her, was a "benign hypertension", and extracted some infected teeth and removed her tonsils. When I examined her she was nervous and apprehensive. Her weight was 135, B.P. 170/90, pulse 120, temperature 99.6. She had a fine tremor, reflexes normal. Her thyroid was palpable, though not too much enlarged. The chest, except for rapid heart, was negative. Abdomen was negative. Rectal examination showed negative pelvis. Basal metabolism next morning, +5. Urine negative. Blood, 71% Hg. Total red cells 4,050,000. Leukocytes 10,450. Polys, 87%, Small lymphs 9, Large lymphs 2%, mononuclears 2%. Wassermann negative.

I advised her to go into the hospital for further observation and rest, which she did the following day. An X-ray of her chest revealed old tubercles, with some peri-bronchial thickening. The thyroid shadow was more dense than normal. Studies of her blood chemistry were nega-

tive. The gall bladder visualized and emptied promptly. Another basal was run with the same result, +5. With absolute rest in bed, with ice cap over cardiac region, ice collar to her neck, and luminol at bed time, she showed a gradual improvement, and at the end of a month left the hospital with normal temperature, blood pressure, 130/80, pulse 76, and a much more stable nervous system.

At the outset I thought I was dealing with a case of hyperthyroidism, but later decided that, although there were symptoms present, the persistent normal basal metabolic rate certainly ruled against hyperthyroidism, and placed this case as an early, abrupt beginning of menopause, with likelihood of relapse.

Osler Building.

## TOXEMIAS OF PREGNANCY—SYMPTOMS AND TREATMENT\*

U. E. NICKELL, M.D.  
DAVENPORT

### I.

The symptoms are divided into two main groups as follows: The mild form, and the severe or grave form. In the mild form we have certain symptoms that we might say are grouped as follows: Nervous symptoms, such as headaches, dizziness, neuritis, neuralgia. Skin symptoms, such as edema, pruritis, pigmentation and acne. Digestive symptoms are, nausea, vomiting, constipation and colic. Circulatory symptoms are, palpitation, varices, syncope, and enlargement of the thyroid. Respiratory symptoms are, cough, asthma. Urinary symptoms are, albumen, decreased output of urea.

On general examination of these mild cases you will find a pasty, muddy skin, dry and coated tongue, reddened gums, pulse of low tension, and tenderness over liver.

The treatment of these cases is symptomatic, and directed toward elimination, with a restriction of all nitrogenous foods plus hygienic living, with the hope of preventing graver toxicosis, so we must always be searching, trying to find the cause so as to remove it.

In general, every mild case of vomiting in pregnancy should be cured just as quickly as possible and prevent the condi-

\*Read before the Lincoln County Medical Society at Chandler, February 4, 1931.

tion going on to an aggravated stage, attention to the bowels and kidneys, a plain, easily digested diet, and a gastric sedative, i. e., cerium oxylate, scale pepsin, cocaine t. i. d. after meals, and suggestive therapy will usually suffice to make these mild cases comfortable. A plan that is often successful, and one that I use in these mild cases, is as follows: A gastric sedative 20 minutes before getting up of mornings, then get up and take a cup of coffee, toast and egg, retire and rest two hours before arising for the day. She should eat small meals, often repeated, consisting mainly of carbohydrates, cereals, bread, fresh vegetables and fruits. Coitus is to be forbidden; insist on the wife having a separate room. The knee chest position, say for 10 to 15 minutes every 6 hours, is helpful by allowing the air to enter the vagina. Adrenalin m. xx. under the tongue is also helpful. Corpus luteum intra-muscularly or intravenously is worth a trial.

*The Graver or Severe forms of Toxemias* in pregnancy are classified as follows, or with the following outstanding symptoms; hyperemesis gravidorum, hepatic toxemia, and eclampsia.

Nausea and vomiting occur in fully one-half of all pregnant women, and is considered by many to be a normal condition and is treated as such; it may be so marked as to become pernicious, leading to abortion and death.

The symptoms of this most dreaded malady of pregnancy, which is sometimes termed obstinate or uncontrollable vomiting is many and varied. It usually begins in the second month, rarely later, and lasts from six week to 3 months. It has been known to prove fatal in two weeks. At the onset of this condition a good many of these patients will not complain of this nausea and vomiting, for the reason it is so frequent in pregnancies, but when the intolerance of the stomach for all foods and liquids become so pronounced and the patient completely loses her appetite, one is forced to recognize such a condition as serious.

## II.

This vomitus is first composed of undigested foods, mucous and bile—later just mucous and bile. The urine is scanty, highly colored and contains traces of albumen, some casts and occasionally some blood.

Now the patient is entering the second stage, or we might say getting worse; the

symptoms are all aggravated and everything is rejected by the stomach; the patient is extremely weaker, and more nervous, loss of weight is more marked, in some cases as much as a pound a day has been noted.

On examining these patients we find a pale, waxy, sometimes icteric skin, the pulse is rapid, 100 to 160 and weak, the B. P. is variable, the tongue and gums are reddened, the tongue dry in the center, sometimes cracked and bleeding, the lips are dry and parched from the irritating vomitus, the breath is fetid, the fever of a low grade but continuous. Sometimes there is a case that will run a subnormal temperature.

The third stage is ushered in with headache, mental delirium, stupor, and coma. The vomiting will cease and you will have good hopes, but false, for the pulse increases in rapidity, the general prostration grows worse, and the patient dies under a clinical picture of acute starvation.

The length of these stages will vary—the first stage is long, the second is longer and the third or last is usually short. The patient gradually grows worse and the prognosis is grave. This is why these cases should never be allowed to go on to the third stage, for when they do, therapeutic abortion will not stay it, but hasten death. Another very noticeable thing about these local and general disturbances is, the fetus is usually alive, and if delivered at full term, is large and fat. If the vomiting is toxic the fetus always suffers, and abortion is more likely to occur.

The cause of these conditions has been attributed to numerous things, as toxemias of the maternal blood, abnormal functions of the thyroid, the adrenals, the corpus luteum, the mamae, all have been suggested as the cause of disturbed metabolism, resulting in the formation of toxins. Some think it is possible for the trouble to arise from the intestinal canal, others from a focal infection, so the nature of these toxins are unknown, and the direct cause of the vomiting is unknown.

The prognosis in these cases are as follows: Good in the first, fair in the second and bad in the third stages.

## III.

Just as soon as a given case shows itself to be obstinate and threatening, the patient should be put to bed, isolated and in charge of a competent nurse, the hori-

zontal position insisted on. The room should be darkened to prevent ocular disturbances, food withheld and the patient quickly gotten under the influence of sedatives, say, bromides per rectum in milk every four hours. Nourishment is resumed after twenty-four hours starvation and then by rectum, one pint of 3% glucose is given with each alternate bromide enema, and when food is resumed by mouth it should be dry. Water is to be withheld for one-half hour after eating. While doing this we should use every precaution to reduce any existing acidosis; to do this perhaps the best remedy that we have in the way of drugs is insulin.

We must not forget that suggestions form a large part in the treatment of these cases of pernicious vomiting, we must determine if the patient is suffering from a neurosis, and by kindly council we are sometimes able to allay a hidden dread of labor.

Medicinal treatment for these cases is disappointing, as it seems to fall short of our desires. There is a host of remedies to pick from, and no specifics. All the remedies for vomiting may be tried, bismuth, pepsin and ingluvin, carbolic acid, cocaine and cerium oxylate are all useful and are deserving of a trial. Gastric lavage is beneficial, especially if the stomach is irritable from a toxic nature.

We have also got to supply the tissues with liquids that have been taken from them by the excess vomiting. Glucose and Locke's solution come nearest meeting this requirement. The glucose can be given intravenously, as much as 500 c.c. of a 6 to 10% solution can be given daily. The saline solutions are best given under the breast or the axillary skin and several liters can be given at a time by the drip method, and by doing this it is possible to carry these patients along until they overcome their toxic or neurotic condition.

#### IV.

The gynecological treatment of these patients is very beneficial in some cases. The examination should be carefully made with the aid of the vaginal speculum, and by so doing you may find erosions of the cervix that can be taken care of with a 10% solution of nitrate silver applied locally, or you may find that a retroverted or ante-verted uterus can be replaced and given relief. And last, I think it is worth trying to dilate the cervix before resorting to abortion.

If after trying all these forms of treatment, the patient continues to grow worse, then we have to resort to the obstetrical treatment, which is of course the emptying of the uterus, for abortion will cure all of these cases of hyperemesis if done early enough, also all reflex and neurotic cases if the patient is not too near dead from starvation.

Now the toxic vomiting, being an expression of a systemic alteration of the metabolism, does not respond so readily, for the liver has already been damaged more or less from the poison in the blood, and for this reason it is best to empty the uterus just as soon as you are confident you are dealing with a toxic condition, but on the other hand we must always keep in mind that a positive diagnosis of toxemic vomiting is more or less doubtful, and that a good many supposedly toxic cases recover under the usual or ordinary treatment. This being true, it is a very delicate point to determine just when to empty a uterus, and I think I am right when I say that the general appearance and physical condition of the patient should always be the deciding factor, or you might say the guiding symptoms for us to go by. But consultation must always be had, first to verify the diagnosis and necessity of performing the abortion; second, to protect the attendant from the imputation of criminal operation, and third, to share the responsibility. You should avoid all appearance of secrecy in these operations. The early cases are best taken care of by dilating and curetting all at the same time; later cases are probably best taken care of by dilating and packing the uterus with gauze, waiting 24 hours and completing the operation; others advocate dilating and emptying at the same time. I think either procedure all right.

This takes us up to the consideration of eclampsia, for all we have said heretofore, if not relieved, will lead up to convulsions, especially if of a toxic nature, and when the pregnant woman has a convulsion, the case at once assumes a most serious aspect, for this first spasm always does damage more or less to all the vital organs, and one spasm is likely to lead to another. The mortality in eclampsia is reported from 10 to 45 per cent for the mother, and 30 to 65 per cent for the child, so each case demands immediate attention, consultation and the best of care.

At present I believe there are only two

lines of treatment to be considered in these eclampsias. One is the conservative, the other the radical. The conservative treatment is mostly symptomatic, as some good men think that eclampsia is a self limited disease, and that if the convulsion can be relieved for awhile that the patient will acquire an immunity, so to speak, and will continue her pregnancy and be carried through to spontaneous labor with less damage and danger than with rapid artificial delivery.

Here is, I believe just about the outline of the symptomatic or conservative line of treatment: (1) Venesection 500 to 1000 cc. from the arm. Some men replace this with sodium bicarbonate solution or glucose solution; the blood letting lowers the arterial tension, removes a small amount of toxic material, and lessens the acidity of the blood, also reduces viscosity, and at the same time favors diuresis and dia-phoresis, which will all have a tendency to relieve angio-spasms. (2) After venesection, give  $\frac{1}{4}$  gr. morphine hypodermically, one hour later 20 gr. chloral hydrate per rectum. Two hours later morphine  $\frac{1}{4}$  gr. hypodermically. Four hours later 30 gr. chloral per rectum, six hours later 15 gr. chloral. The chloral is best given in  $\frac{3}{4}$  ounces warm water and given slowly. A little chloroform can be given to hasten the relief of the spasm, but as a rule the patient quiets down, the convulsion will cease, or at least come further apart, and the patient go on to full term. But when the labor finally comes on the convulsions are likely to return. Just as soon as labor is so far advanced that it can be terminated with safety to the mother, i. e., the cervix fully dilated, the delivery should be effected in a manner befitting the condition present. If the head is engaged, deliver with forceps, if not, do a version.

The men who advocate radical delivery base their arguments on statistical, theoretical, and practical grounds. They say that eclampsia is the result of abnormal processes going on in the ovum, and by the removal of the fetus and placenta, the source of the toxemia is eliminated, and it is generally accepted that the convulsions cease or become less severe after the uterus is emptied.

The method of effecting delivery depends on, first, the period of the pregnancy; second, the environment of the patient; third, the state of the cervix; fourth, the complications, such as placenta

previa, contracted pelvis, etc. Before the seventh month all babies die, therefore it is only necessary to procure enough dilatation of the cervix to perform craniotomy and deliver. After viability one should try and save the baby, if the cervix is dilated, the head engaged, delivery is accomplished at once with the forceps, but if the head is above the brim, do a version and extract.

## RECONSTRUCTION OF THE BURNED HAND\*

CURT VON WEDEL, M.D.  
OKLAHOMA CITY

In the short time that has been allotted, it will be possible to discuss only the more important factors of reconstruction of the hand. First we divide the burned hand into three groups:

1. Burns on the palm with contractures.
2. Burns of the dorsum with contractures not involving the joints.
3. Burns involving the joints and tendons.

The hand, next to the brain, is the most essential part of the body for earning a livelihood for the average man. There are four outstanding functions:

1. Finger and thumb approximation, which is most important.
2. Flexion of the hand in the palm.
3. Abduction and adduction.
4. Flexion and extension of the wrist.

In the reconstruction of the hand from burns, we are concerned mostly with finger and thumb approximation, and flexion and extension of the fingers.

### BURNS OF THE PALM

These are common in children; in adults rather rare, and occur only in cases either due to electricity or where the hand has been both bruised and burned, such as one sees from a laundry mangle or when a hand is forced against some very hot object. This is because of the splendid anatomical protection and because of the secretory glands which moisten the palm. In the ordinary flesh burn from gasoline or steam, or explosion of gas, the palm is

\*Given before the Oklahoma County Clinical Society, Oklahoma City, May 1930.

seldom involved. It is usually the dorsum of the wrist. When the palm is involved, because of the protection of the palmar fascia, the tendons and tendon sheaths are not often involved, unless it be of such a destructive type of burn the hand is practically destroyed. Consequently the contractures resulting from burns of the palm of the hand usually do not involve the tendons or tendon sheaths. This makes our problem considerably more simple.

Practically all the burns of the palm in children are treated with wide excision and full thickness grafts. Viz: The free transplanted full thickness graft; that is, the Wolf-Krouse type of graft. In children, particularly if the fingers are sewed down, our results are quite splendid. In adults it is likewise a very satisfactory type of repair. It offers quite an excellent functional end, because there is usually enough fat left even though one must remove the palmar fascia in the contractures, which often is necessary to allow for a mobile graft.

When the burns are deep, involving the tendon sheath such as in electrical burns, a pedicle graft containing fat must be used. When we use a pedicle graft for the palm of the hand, we usually take it from the abdomen, cutting the graft rather thin, because one is apt to get the graft too thick and get a pouchy patch in the palm of the hand, unless another operation is done to thin the graft. These grafts give splendid functional results.

#### BURNS ON THE BACK OF THE HAND WITHOUT INVOLVEMENT OF THE JOINTS

It is well to X-ray these hands and study the joints, and well to give these cases a whiff of gas and manipulate and thoroughly study the hand so as to know approximately how much involvement there is of the joints. Assuming that we have no extensive involvement of the joints, we treat these cases by two methods; full thickness, and pocket grafts. Inasmuch as closure of the hand necessitates a very loose skin on the back of the hand, one must either use a pedicle graft with some fat on it to allow for slipping, or if one uses a full thickness graft, we must later split the full thickness graft and insert separate grafts over the knuckles. I have found this more satisfactory than attempting to get the graft to take with the hand in full flexion as it is almost impossible

to hold it absolutely fixed in this way with the pressure that is necessary, because in spite of splint pressure, one moves the fingers a little bit, which of course prevents our grafts from taking. We have therefore applied full thickness grafts over the whole dorsum of the hand in extension. About two months later, have incised the full thickness grafts over the knuckles, bent the knuckles down in full flexion, and inserted small grafts in the defect by turning the edges over about one-half larger. In this way we are able to put in a graft  $1\frac{1}{2}$  times the usual size necessary, thus giving more free motion.

If circumstances warrant it, and we can get the co-operation of our patient a pocket graft offers one of the nicest ways for correcting this condition. A pocket graft in the upper inside of the thigh is a very excellent manner of doing this. The skin is thin over this area, containing just about enough areolar tissue and fat, and is a very comfortable place to bury a hand. Little slits are made and the hand pocketed, and allowed to remain. At the end of two weeks under local anesthetic, the skin is cut away. Before we insert the hand in the pocket, a Tiersch graft is placed over the raw area, for two reasons:

1. Prevents infection.
2. We can usually get a pretty good take, and thus avoid a second operation.

When one hand only is burned, this offers a very nice result. When two hands are burned as they often are, patients complain bitterly about the procedure and do not want both hands pocketed at the same time. Consequently we often use a pocket on one side and a full thickness on the other.

We regret to say time does not allow us to go into detail as to reconstruction of hands involving loss of tendon, tendon sheaths and joints. These procedures each require a long time and separate technique. One must consider the economic status of the patient as well as the extent of the finger or hand involved. When tendons are destroyed, it adds greatly to our troubles, necessitating implantations from the tendons of the toes for tendon repair, and fascialata at the end of the joints for joint repair.

# THE JOURNAL

OF THE

## Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor  
Medical Arts Building, Tulsa, Okla.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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### EDITORIAL

#### THE CARE OF THE COMMONER RECTAL CONDITIONS

Unless it is genito urinary affections, perhaps there is nothing in medicine providing such a prolific field for the charlatan and incompetent as rectal conditions. No affections known to mankind are so treated and mistreated as these conditions.

The first indictment which may be often brought against the medical profession is the entire lack of or inadequate preliminary examination of these cases. Before any treatment is instituted a proper examination should clearly determine the case.

Some conditions—the great majority of them—are amenable to the simplest treatment. In fact the proper treatment may be said to be practically routine, but it is the occasional and exceptional cases that tests the physician's value to his patient. The severest of all conditions is cancer and it is universally overlooked in the pre-cancerous stage, and commonly after the establishment of a very grave condition.

Hemorrhoids, anal fissure, fistula in ano, and last but certainly not least to the patient is pruritus ani, often fairly easy of relief occasionally most difficult of relief, if relievable at all.

After determining the condition, as a rule the treatment is merely routine. Hemorrhoids are more successfully treated by the various forms of operation. It is questionable if the injection treatment is worth while, if one considers the number of failures, sometimes the severe complications, all of which call for future operation. Injection may relieve for a time but usually such procedure is only palliative. Phenol is positively dangerous in such conditions and it is said death has resulted from its use. One of the severest reactions the writer ever saw was three weeks after treatment by electro coagulation.

*Fistula in ano.* The thorough eradication of every tract is positively demanded if a cure is to be expected. Injection of these tracts are useless. These conditions usually grow worse, that is, more sinus form with time. Often the proper treatment of fistulae calls for an operation of two, three or more stages but these are unusual. The writer has had no success with attempting to close the field after excision. More than one division of the sphincter is never made at once. These cases are operated in two stages.

*Puritus ani.* This is an irritating, aggravating and difficult condition to handle. Neither vaccines, heliotherapy, light, X-ray therapy or Christian Science ever stops the itching. Aside from local application containing various anesthetics, phenol especially, perhaps what is called the circle of undermining operation is productive of the most relief in the most cases.

But as above noted do not forget a thorough initial examination.

### POST-GRADUATE WORK

Post-graduate work for Oklahoma physicians through the cooperation of the Ex-

tension Department of the University of Oklahoma and the State Medical Association was made available at several points in the State in April. The attendance was as follows: McAlester, 75; Lawton, 25; Oklahoma City, 405; Enid, 63; Tulsa, 147, or a total of 715 attendance. The clinics were presented by Drs. William H. Olmstead, St. Louis; J. H. Musser, New Orleans; Porter P. Vinson, Rochester; Charles A. Elliott, Chicago.

It is proposed to continue these clinics annually hereafter, in order to give the rank and file of the profession opportunity to have a Field Day in various branches of medicine and surgery without putting them to the expense of leaving their work and making long trips from home.

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### Editorial Notes—Personal and General

DR. LEALON LAMB, Clinton, who has been ill for some time is reported improving.

HUGHES COUNTY MEDICAL SOCIETY met April 10th, at Holdenville for their regular meeting. Dr. R. D. Morris, Allen, read a paper on "Pneumonia" and Dr. A. M. Butts, Holdenville, opened a general discussion on the subject.

OKMULGEE COUNTY MEDICAL SOCIETY met at Okemah, April 20th. After a good dinner they heard Dr. C. R. Rountree, Oklahoma City, on "Treatment and Management of Fractures of the Elbow, Wrist and Ankle Joint;" and Dr. Wendell Long, Oklahoma City, on "Uterine Bleeding."

PITTSBURG COUNTY MEDICAL SOCIETY meeting on April 17th, officially advised that the Post-Graduate Course offered by the University Extension Department held at McAlester, April 7th, was a great success, thoroughly appreciated and enjoyed by all those attending. About 80 physicians attended the course and Pittsburg Society petitions that it be repeated at some future date.

GARFIELD COUNTY MEDICAL SOCIETY presented their annual Guest Day April 9th, at Enid. Dr. Wm. E. Olmstead of St. Louis, Mo., opened the program with a lecture on "Diseases Where Dietetic Treatment is Essential." His talk was followed by a food demonstration. Dr. Porter P. Vinson, Rochester, discussed "Diagnosis and Treatment of Cardiospasm." Dr. John H. Musser, New Orleans, spoke on "The Acute Infections." Dr. Charles A. Elliott, professor of Medicine at Northwest University School of Medicine, spoke on "Blood Pressure." The speakers were secured through the services of the University Extension Department.

THE ANNUAL post-graduate summer clinics conducted by Cook County Hospital, Chicago, under the auspices of the Chicago Medical Society will be held June 22 to July 3. Doctor N. S.

Davis III, Secretary of the Society, reports that the clinics will be organized to give the practicing physicians in attendance practical instruction in the line of medicine and surgery. In fact, the two weeks will cover an intensive post-graduate study of the latest modern medical development. Cook County Hospital probably offers a better opportunity for such study than any other hospital in the country.

Medical men from all sections of the United States and Canada are expected to attend these clinics which will be held from eight A. M. to five P. M., each day and the lectures that will be given three nights each week at eight o'clock. Physicians desiring further information about this post-graduate course should write the Secretary of the Chicago Medical Society, 185 North Wabash Avenue, Chicago.

### BEWARE THIS SOLICITOR

On February 23, this year, a solicitor victimized a number of physicians in St. Joseph. His plan was to solicit subscriptions to Harpers and other magazines and to offer sets of books as premiums. The subscription blank called for the payment of \$9.70 in ninety days. He was supplied with blanks, samples of binding and everything to indicate that he was a bona fide magazine salesman.

After he had secured the signature on the subscription blank, he explained in an indifferent manner that if the subscriber cared to pay cash, or by check, there was a discount of \$1.00, and the check could be made payable to "Harpers Brothers Publishing Co.," the name printed on the subscription blank. The doctors "fell for it," and the next day he cashed the checks at a local bank and departed. He used the name T. T. McLean while here but has also used the name Leroy Dale.

Correspondence with the National Publishers Association, 15 West 37th St., New York, indicates that this person has been defrauding physicians in the Middle West for several months.

### OKLAHOMA CITY FALL CLINICAL CONFERENCE

The Oklahoma City Clinical Society announces that the annual Fall conference will be held November 2, 3, 4, 5, 1931.

An imposing array of distinguished guests are on the program and the officers and members of the society are putting forth every effort to make this meeting the most instructive and interesting of any to be held in the Southwest.

Among the leaders of the medical profession who have definitely accepted invitations to address the conference are:

Hugh Cabot—Mayo Clinic—Rochester, Minnesota.

Arthur Steindler—Professor of Orthopedics, State Univ. of Iowa—Iowa City.

Lawrason Brown—Med. Director, Trudeau Sanitarium—Saranac Lake, New York.

J. B. Herrick—Emeritus Prof. of Medicine, Rush Medical School, Univ. of Chicago,—Chicago, Illinois.

Thomas McCrae—Prof. of Medicine—Jefferson Medical College—Philadelphia, Pa.

Franklin P. Gengenbach—Assoc. Prof. of Pediatrics, University of Colorado School of Medicine—Denver, Colorado.

Howard Fox—Prof. of Dermatology, University and Bellevue Hospital Medical College—New York City.

Walter E. Dandy—Assoc. Prof. Clinical Surgery—Johns Hopkins University—Baltimore, Md.

Harry S. Crossen—Prof. of Clinical Gynecology. Washington University School of Medicine—St. Louis, Mo.

Richard A. Kern—Philadelphia, Pa.

Many others have been invited and will doubtless be listed on the final program.

Headquarters this year will be at the Oklahoma Club where there is ample room for all the general and special sessions, commercial and scientific exhibits, round table luncheons, etc. The society has the cooperation of the Oklahoma City Chamber of Commerce and is sending out 12,000 invitations to the doctors of Oklahoma and bordering states. The attention of the medical profession of the entire Southwest will be focused on Oklahoma City this Fall, and the society is to be commended for its activity in furthering Oklahoma medicine.

#### STUDIES ON DIGITALIS IN AMBULATORY CARDIAC PATIENTS

Harry Gold and Arthur C. DeGraff, New York (Journal A. M. A., April 27, 1929), in making studies on digitalis in ambulatory cardiac patients found that regarding the use of digitalis it is essential to bear in mind the practical distinction between (1) types of failing circulation in which the use of the drug results in striking improvement, and (2) types of failing circulation in which the use of digitalis is indicated on the basis of certain experimental data and theoretical considerations, but in which clinical study thus far gives evidence of little, if any, beneficial effect. It is pointed out that numerous errors in the interpretation of clinical observations have arisen from failure to consider this distinction. There is no essential difference between the behavior of digitalis in children and in adults. The drug is less often seen to produce striking improvement in children than in adults because the type of heart failure that is relieved most effectively by digitalis (congestive heart failure without active infection of the heart) is relatively common in heart disease among adults but relatively rare in that among children. In those cases in which less definite therapeutic effects are obtained, insufficient or excessive digitalization is more apt to occur because of the absence of a satisfactory guide to the intensity of digitalis action. Digitalis cumulation, as occurring in the course of the daily administration of a suitable fixed dose of the drug, can be shown to be a self-limiting process. The intensity of digitalis action present at the time when further cumulation ceases to occur depends on the size of the daily dose. Experiments cited show that, contrary to the view commonly held, a patient does not eliminate a fixed quantity of digitalis daily, but a quantity that varies with the amount present in the body. It is shown that the full therapeutic effects of digitalis may be induced in many cases by the daily repetition of such doses of the drug as the patient may eliminate daily after having been fully digitalized.

#### EFFECT OF LIVER ON BLOOD SUGAR LEVEL

A study made by Harry Blotner and William P. Murphy, Boston (Journal A. M. A., April 20, 1929), of the effect of liver feeding on the blood sugar indicates that whereas previously liver has been regarded as an unsuitable article of food for diabetic patients because of its glycogen content, it is now known to have a beneficial effect on the blood sugar of these patients. The liver fractions that are effective in the treatment of pernicious anemia have no effect on the blood sugar, whereas certain liver fractions that are ineffective in the treatment of pernicious anemia have an effect on the blood sugar like that of liver. Four patients with diabetes taking liver daily or from three to five times a week have been observed with repeated blood sugar determinations for approximately one year, while in two who were followed for twenty and thirty days it was found that the blood sugar has remained at a constantly lower level than previous to liver therapy. These observations suggest that liver contains a blood sugar reducing substance active when taken by mouth, nontoxic, and with an effect on the blood sugar concentration similar to that obtained with insulin. It is difficult to estimate the quantity of liver that will replace a known amount of insulin, but the authors feel that 180 gm. of liver will have an effect on the blood sugar of diabetic patients equal to that of from 10 to 15 units of insulin.

#### NEW LIGHT ON RICKETS

In the Journal of the American Medical Association, April 4th, 1931, page 100, appears an imposing list of scientific papers on vitamin D the basis for which is Mead's Viosterol in Oil, 250 D.

It is highly significant that almost all of the authorities in this field have accepted the Mead brand as the standard. This is due to the medical profession's unique respect for Mead Johnson & Company and the fact that this particular brand of viosterol enjoys the longest continuous laboratory and clinical experience in America—dating back to 1927.

On page 12 of the J. A. M. A., for April 11th, 1931, under the title "Viosterol is not a substitute for cod liver oil except in rickets," is a very interesting statement of the comparative values of viosterol, cod liver oil and 10 D cod liver oil which clarifies the respective advantages of each of these antiricketic agents.

#### HEALTHY CARRIER IN SCARLET FEVER

Fourteen cases of scarlet fever have been traced by Ruth Tunnicliff and T. T. Crooks, Chicago (Journal A. M. A., May 4, 1929) to three healthy carriers of scarlet fever streptococci. They used the opsonic test for the identification of scarlatinal streptococci which is simple and concise and can be carried out in any public health laboratory almost as quickly and accurately as can the cultural diagnosis of diphtheria. Immunologic methods for the detection of carriers of scarlet fever streptococci may now enable us to check scarlet fever outbreaks just as we do diphtheria epidemics. Tunnicliff and Crooks conclude that as more experience is gained it is hoped methods may soon be introduced not only for determining the quarantine periods for convalescent carriers but also for the isolation of healthy carriers of scarlet fever organisms.

## PROGRAM

### THIRTY-NINTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 11, 12, 13, 1931

*Meeting Places*—Shrine Temple, Oklahoma City, Telephone 2-0036.

*Hotel Headquarters*—Skirvin Hotel, Telephone 2-1251.

*Registration*—All physicians, except those from outside the State and visiting guests, must hold membership certificates for 1931 before they may register. It is urgently requested that all physicians attend to this matter by arranging their membership status with their County Secretary, if it is in doubt, before attempting to register.

Women will register Mezzanine floor Skirvin Hotel.

*Delegates*—Prior to the meeting the President will appoint a Credentials Committee. This Committee will function for the purpose of registering Delegates at the Shrine Temple, early on the evening of Monday, May 11th. It will save a great deal of time for the Council as well as aid the quick organization of the House of Delegates if each Delegate will present his credentials as soon as possible to the Credentials Committee.

*Papers*—Are the sole property of the Association and should not be taken from the meeting place but should be deposited either with the State Secretary or with the Secretary of the Section in which they are read. These papers should be prepared in triplicate, a copy for the author's use; a copy to be sent prior to the meeting to the one designated to open discussion of the paper; the third copy for use in the Journal. Before final publication the author will be sent proof for his correction as well as quotations on the price of reprints, which are furnished by the printer of our Journal, at about actual cost. Reprints should be requested in advance, otherwise the type may be destroyed, after which they can only be had by resetting the article entirely. Papers should be double spaced, with wide margins, and should contain:

1. The title.
2. Name of author, address and street number.

3. The section in which read and time presented.

*House of Delegates*—Will meet at 7:30 P. M., Monday, May 11, in Harding Hall, Shrine Temple, for the transaction of such business as is necessary.

The House of Delegates must also meet at 8.00 A. M., Tuesday, May 12th, in the small banquet room, of the Shrine Temple. This meeting for election of officers.

*Council*—Will meet at the Skirvin Hotel, Monday, May 11th, 3:00 P. M., and thereafter upon call of the President. It is the function of the Council to originate and consider all business affairs of the Association. All matters involving finances and expenditures of funds must be presented to and considered by that body.

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#### SECTION AND MEETING PLACES SHRINE TEMPLE

*Exhibits*—All exhibits, both commercial and scientific, as well as registration will be held in the large banquet room on the ground floor. Registration may be made at this place beginning with the morning of Monday, May 11th.

*General Medicine*—Will meet on the ground floor, small banquet room.

*Eye, Ear, Nose and Throat*—Will meet in the Band Room, ground floor.

*Surgery*—Will meet in Harding Hall.

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*Committees*—The following Committees have been appointed to function on behalf of Oklahoma County. Prospective attendants should communicate with these committeemen with reference to the particular feature which they may be directing:

*General Chairman*—Dr. Cyril E. Clymer.

*Vice-Chairman*—Dr. Henry H. Turner.

*Program*—Dr. A. W. White, Chairman; Dr. Ray Balyeat.

*Finance*—Dr. E. S. Lain, Chairman; Dr. L. J. Starry.

*Badges*—Dr. Phil McNeil.

*Entertainment*—Dr. J. M. Alford, Chairman; Dr. Rex Bolend; Dr. Dick Lowrey.

*Golf*—Dr. Wendell Long.

*Reserve Officers*—Dr. John A. Roddy, Chairman; Dr. Lea A. Reily.

*Fraternal Dinners*—Dr. E. P. Allen; Dr. John Heatley.

*Women's Entertainment*—Ladies' Auxiliary, Mrs. C. M. Pounders, President.

*Hotels*—Dr. John Z. Mraz.

*Exhibits*—Dr. Earl D. McBride.

*Scientific Exhibits*—Dr. Curt von Wedel.

*Fraternal dinners* will be held Tuesday, May 12, 6:00 P. M.

*General Meeting* will be held Tuesday, May 12, 8:00 P. M., Harding Hall, Shrine Temple.

*Eye, Ear, Nose and Throat Section* will hold clinics in the various hospitals on the morning of May 12th.

#### JOINT SCIENTIFIC SECTIONS

The mornings of May 12th and 13th, beginning at 8:30 o'clock, will be held in Harding Hall as follows:

TUESDAY, MAY 12TH

8:30 *Fracture Clinic*—Chairman, WADE H. SISLER, M.D., Tulsa.

*Mal and Ununited Fractures*—W. P. FITE, M.D., Muskogee.

*Fractures of the Upper Extremity*—S. R. CUNNINGHAM, M.D., Oklahoma City.

*Fractures of the Skull*—HORACE REED, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—*The Normal and Diseased Heart*, J. H. MUSSER, M.D., New Orleans.

11:15 *Address*—*Malignant Growths of the Gastrointestinal Tract*, DEAN LEWIS, M.D., St. Louis.

WEDNESDAY, MAY 13TH

8:30 *Fracture Clinic*—Chairman, WADE H. SISLER, M.D., Tulsa.

*Mal and Ununited Fractures*—W. P. FITE, M.D., Muskogee.

*Fractures of the Upper Extremity*—S. R. CUNNINGHAM, M.D., Oklahoma City.

*Fractures of the Skull*—HORACE REED, M.D., Oklahoma City.

9:30 Moving Pictures.

10:30 *Address*—*Facial Abnormalities, Fancied and Real; The Reaction of the Patient; Their Attempted Correction*, (illustrated with lantern slides), VILRAY P. BLAIR, M.D., St. Louis.

11:15 *Address*—*The Decline and Revival of Mobile Kidney Surgery*, BRANSFORD LEWIS, M.D., St. Louis.

#### PROGRAM, GENERAL MEETING

TUESDAY, MAY 12, 8:00 P. M.

Shrine Temple, Oklahoma City

*Presiding*—C. E. CLYMER, M.D.

*Invocation*—REV. A. M. JAYNE, Oklahoma City.

*Music*.

*Address of Welcome*—Representative of Chamber of Commerce, Oklahoma City.

*Response*—W. ALBERT COOK, M.D., Tulsa.

*Music*.

*Introduction of E. S. FERGUSON*, M.D., retiring President.

*Introduction of President-Elect HENRY C. WEBER*, M.D., Bartlesville.

*Introduction of Guests*.

*President's Address*—HENRY C. WEBER, M.D., Bartlesville.

#### ORATIONS

WEDNESDAY, MAY 13TH, 7:45 P. M.

Harding Hall, Shrine Temple

*"Gastro-duodenal Ulcer, Medical Aspects"*—A. W. WHITE, M.D., Oklahoma City.

*"Gastro-duodenal Ulcer, Surgical Aspects"*—P. P. NESBITT, M.D., Tulsa.

*"Recent Advancement in Allergy"*—RAY M. BALYEAT, M.D., Oklahoma City.

President's Reception and Dance, Wednesday, May 13, ball-room, Shrine Temple.

#### GOLF

Annual State Medical Tournament

MAY 11TH. 1931

Oklahoma City Golf and Country Club (Nichols Hills). Start teeing-off at 9:00 A. M. Every member of State Medical Association eligible and guest of Oklahoma

County Medical Society. Prizes numerous and fine. Arrange to play:

1. By mailing name and estimated handicap to Golf Committee, 714 Medical Arts Building, Oklahoma City.

2. By indicating to Registrar.

To play golf on May 12th and 13th, consult golf committee or speak to registrar—it will be arranged.

### OKLAHOMA PEDIATRIC SOCIETY

MONDAY, MAY 11TH, 1931

*Morning Session 9.00 o'Clock*

*Children's Hospital—800 N. E. 18th St.  
Clinics By*

Dr. J. B. Snow  
Dr. Geo. H. Garrison  
Dr. Clark H. Hall  
Dr. A. L. Salomon  
Dr. W. M. Taylor

*Afternoon Session 1:30*

*Shrine Temple—Sixth and Robinson Ave.*

1. *Chairman's Address*—CARROLL M. POUNDERS, M.D., Oklahoma City.
2. *The Diagnosis of Enlarged Thymus*—FANNIE LOU BRITTAINE, M.D., Oklahoma City.
3. *Personal Experience with Enlargement of the Thymus*—MAURICE J. SEARLE, M.D., Tulsa.
4. *Neuro-endocrine Problems in Children*—HENRY H. TURNER, M.D., Oklahoma City.
5. *Congenital Neurosyphilis with Many Convulsions, Particular Reference to the Effect of Tryparsamide*—T. H. McCARLEY, M.D., McAlester.
6. *Scurvy in Children*—C. W. ARRENDELL, M. D., Ponca City.

*Election of Officers.*

### WOMEN'S AUXILIARY

Mrs. J. Z. Mraz, Editor, Oklahoma State Women's Auxiliary, makes the following announcement:

*General Headquarters*—Skirvin Hotel.

*Registration*—Mezzanine floor (it is requested that registration be made as soon as possible).

*Progressive House Party*—Monday evening, May 11th, 1931.

*Meeting of the Women's Auxiliary*—

Tuesday, morning 10:00 o'clock, May 12th, followed by luncheon.

*Dance*—Wednesday, May 13th, 9:00 P. M., Shrine Temple.

Mrs. Carroll M. Pounders, 904 East 19th Street, Oklahoma City, is General Chairman of arrangements for the social entertainment of the visiting ladies.

*Golf*—Dr. Wendell Long, announces that the Oklahoma City Golf and Country Club, Twin Hills Golf Club and the Spring Lake Links will be available for visiting physicians.

### SECTION CHAIRMEN

#### GENERAL MEDICINE

Ben H. Cooley, M.D., Chairman, Norman.

H. H. Turner, M.D., Secretary, 1200 North Walker, Oklahoma City.

#### EYE, EAR, NOSE AND THROAT

Ruric N. Smith, M.D., Chairman, Medical Arts Bldg., Tulsa.

A. L. Guthrie, M.D., Secretary, Medical Arts Bldg., Oklahoma City.

#### SURGERY

W. C. Vernon, M.D., Chairman, Okmulgee.

Leonard Williams, M.D., Secretary, 1200 North Walker, Oklahoma City.

All communications with reference to the Scientific Sections should be addressed to these officers.

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### SECTION ON EYE, EAR, NOSE AND THROAT

1:30 P. M., TUESDAY, MAY 12, 1931

Meeting Place—Band Room

RURIC N. SMITH, M.D., Tulsa, Chairman. AUSTIN L. GUTHRIE, M.D., Oklahoma City, Secretary.

1. *Chairman's Address*: RURIC N. SMITH, M.D., Tulsa.
2. *Eye Complications Following Head Injuries*—CHARLES H. HARALSON, M. D., Tulsa.  
Discussion: D. D. MCHENRY, M.D., Oklahoma City.
3. *The Treatment of Acute and Chronic Maxillary Sinusitis*—WM. MITHOEFER, M.D., Cincinnati, Ohio.  
Discussion: DANIEL W. MILLER, M. D., Blackwell.

4. *Management of Ocular Complications in Diabetes Mellitus. Ophthalmic Surgery in India (Movies)*—ALVIN McALESTER, M.D., Kansas City, Missouri. Discussion: E. S. FERGUSON, M.D., Oklahoma City.
  5. *Intra-nasal Operation of the Tear Sac* FRANK R. VIEREGG, M.D., Clinton. Discussion: H. COULTER TODD, M.D., Oklahoma City.
  6. *Eye Conditions as the Result of Syphilis*—C. P. MITCHELL, M.D., Chickasha. Discussion: J. C. McDONALD, M.D., Oklahoma City.
  7. *Focal Infections*—MARVIN HENLEY, M.D., Tulsa. Discussion: A. C. MCFARLING, M.D., Shawnee.
  8. *Ionization in Ear, Nose and Throat*—H. F. VANDEVER, M.D., Enid. Discussion: L. C. KUYRKENDALL, M.D., McAlester.
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#### SECTION ON SURGERY

1:30 P. M., TUESDAY, MAY 12, 1931  
Harding Hall, Shrine Temple

- W. C. VERNON, M.D., Okmulgee, Chairman.
- L. C. WILLIAMS, M.D., Oklahoma City, Secretary.
1. Chairman's Address: W. C. VERNON, M.D., Okmulgee.
  2. *Traumatic Rupture of the Kidney*—CLINTON SMITH, M.D., Kansas City, Missouri.
  3. *Urethral Strictures*—O. R. GREGG, M.D., Enid.
  4. *The Treatment of Burns, the Promotion of Early Healing and Correction and Prevention of Late Complications*—VILRAY P. BLAIR, M.D., St. Louis, Missouri.
  5. *Post-Operative Care of Patients*—C. K. LOGAN, M.D., Hominy.
  6. *Cysts of the Urachus. Case Reports*—LEROY LONG, SR., M.D., Oklahoma City.
  7. *Vaginal Hysterectomy*—MARVIN E. STOUT, M.D., Oklahoma City.
  8. *Solitary Cysts of Kidney With Calcification*—J. M. BYRUM, M.D., Shawnee.
  9. *Ileus*, DEAN LEWIS, M.D., Baltimore, Md.
  10. *Legal vs. Physical Disability in Com-*

- pensation Cases*—W. M. BAILEY, M.D., Oklahoma City.
11. *Extra-Uterine Gestation*—JAS. L. SHULER, M.D., Durant.
  12. *Use of Sodium Amytal in Obstetrics by the General Practitioner*—E. K. COLLIER, M.D., Tipton.
  13. *Spinal Anesthesia*—R. Q. ATCHLEY, M.D., Tulsa.
  14. *Surgical Browning*—F. L. WATSON, M.D., McAlester.
  15. *Traumatic Surgery*—E. ALBERT AISENSTADT, M.D., Picher.
  16. *The Peritoneal Cavity*, ROSS GROSSHART, M.D., Tulsa.
  17. *Intraveneous Anesthesia With Sodium Amytal in Surgery*, A. L. BLESH, M.D., Oklahoma City.
  18. *Preoperative Preparation of Patients for Biliary Tract Surgery*, FRED S. CLINTON, M.D., Tulsa.
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#### SECTION ON GENERAL MEDICINE

Small Banquet Room—Shrine Temple  
1:30 P. M., TUESDAY, MAY 12, 1931

- BEN COOLEY, M.D., Norman, Chairman.  
HENRY H. TURNER, M.D., Oklahoma City, Secretary.
1. Chairman's Address: *Psychiatry in General Medicine*—BEN H. COOLEY, M.D., Norman.
  2. *The Acute Infectious Diseases*—J. H. MUSSER, M.D., New Orleans, La.
  3. *Cardiac Pain (illustrated)*—LOUIS FAUGERES BISHOP, JR., M.D., New York.
  4. *Medical Aspects of Ulcer and Cancer of Stomach*—C. C. FINE, M.D., Cincinnati, Ohio.
  5. *Roentgenological Aspects of Duodenal Ulcer*—JOHN E. HEATLEY, M.D., Oklahoma City.
  6. *Silicosis*—F. V. MERIWETHER, M.D., Picher.
  7. *Diagnosis and Treatment of Arthritis*—EDWARD K. WITCHER, M.D., Tulsa.
  8. *Chronic Pancreatitis, A clinical study* LEA A. RIELY, M.D., Oklahoma City.
  9. *The Pathology of Chronic Pancreatitis (illustrated)*—PROF. L. A. TURLEY, Oklahoma City.
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1:30 P. M., WEDNESDAY, MAY 13, 1931

1. *Vaccine Therapy in Chronic Arthritis*—E. GOLDFAIN, M.D., Oklahoma City.

2. *Our Responsibility to the Nervous Patient*—M. S. GREGORY, M.D., Oklahoma City.
  3. *Treatment of the Post Encephalitic Parkinsonian Syndrome* — F. M. ADAMS, M.D., Vinita.
  4. *Tetanus, the Diagnosis and Treatment* —JOHN A. HAYNIE, M.D., Durant.
  5. *Fusospirochaetal Infection of the Gastro-Intestinal Tract*—F. M. DUFFY, M. D., Enid.
  6. *Glucose in the Treatment of Pneumonia*—E. ELDON BAUM, M.D., Tulsa.
  7. *Poisoning from Natural Gas and Its By-Products*—W. B. NEWELL, M.D., Enid.
  8. *The Injection Treatment of Varicose Veins*—R. Q. ATCHLEY, M.D., Tulsa.
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### COMMITTEE REPORTS

These reports are made in compliance with provisions of the new Constitution and By-Laws which call for publication of such matter in the issue of the Journal preceding the Annual Session.

#### REPORT OF COMMITTEE ON MEDICAL ECONOMICS, 1931.

Our report this year will discuss only the phase of "Medical Economics" which comes under the heading of sickness insurance. Much of the material given in this report is taken from a report of Dr. W. C. Rappleye, New Haven, Conn., read before the Annual Convention of the Secretaries of Constituent State Medical Associations of the A. M. A.

"Any plan of financing or organizing medical services, whether developed from within the profession or imposed on it from without, that threatens to lower the quality of those services, will in the long run, be detrimental to the public welfare." The fact that twenty-three leading countries of the world have adopted compulsory sickness insurance and seventeen rely largely or entirely on voluntary insurance makes the subject one on which we can well spend time for study. Sickness insurance is simply one phase of a much larger program of social insurance or economic insurance which is designed to cover a number of different risks. There are three main groups: (1) Those of economic origin; (2) those of occupational origin; and (3) those of non-occupational origin, including death, sickness, disability and old age. Our present day compensation law which insures against loss of time and permanent disability is a form which is in effect in most states in the Union. The primary aim of all social insurance is to distribute the financial burden for sickness in the case of sickness insurance over a large group of the population so as to make the expense at the time of sickness only a minimum to the individual. This is of particular value to those persons with a narrow economic margin. The danger of such a plan, of course, is that many of those persons depending upon this type of service obtain only indifferent medical care or almost no care at all.

Originally, sickness insurance was intended simply to provide cash for loss of wages during the time of sickness and disability. Later it was widened to include the medical care of the patient during the time of sickness and until he was restored to health and earning capacity. The latest trend now is widened out to include the prevention of illness.

Taking the country at large, the amount of money spent for medical care is not nearly so large as the amount spent for various luxuries and non-essentials, for example, the people of the United States spend three times as much for tobacco and twice as much for candy as they do for their doctor, while the cost of the nation's soft drinks and chewing gum is even larger than that. There would be no burden upon the people or difficulty in paying for medical services, if there were some means of shifting the outlay for less essential items to that of medical care, hospitals, etc.

One striking feature of the health service is that about 20% of the population pay nearly two-thirds of the annual cost of the medical care. What we need is a plan whereby a distribution of the cost would become more equitable. Only about 20% of that burden is distributed through insurance and other means of providing for the expense when the crisis arises. Sickness insurance aims at distributing the financial burden over a large group of population so as not to have an excessive load on the individual at the time when sickness comes.

The points to be discussed and the problems to be met along this line are very numerous. We have the compensation laws, the question of the rates to be paid, the administration factors, the loss of wages to be considered, the problems that include complete medical services for the entire family in addition to simply the wage earner, and the question of what constitutes proper medical care, that is, the needs of the individual and the community at large. Should the hospital be supported by those that must of necessity be treated in the hospital, which only includes about 10% of the individuals that are sick? Should that expense be borne by the entire community, as it is worth something to the community to have such institutions ready and fully equipped to care for them if they become sick?

It is not unreasonable to believe that a country which regulates its industries, its interstate commerce and its educational program will at some future time endeavor to improve and conserve its greatest asset, the health of its people. The physician should take the keenest interest in the study of these basic problems. He should try to determine the function and the methods of financial support of the various medical and health services and should give sound advice for considering these questions in the economic and social needs of our time. The leadership for this question should come from the medical profession. The organized medical body of this State should have a constructive and positive program to lead the medical thought of the various communities in our State. Other professions as law, banking, education, etc., have their leaders and there is no reason why the people should not expect medicine to direct them in health lines. Should we not meet our obligations by providing this leadership?

W. H. BAILEY, M.D.,

Oklahoma City, Chairman,  
J. HUTCHINGS WHITE, M.D., Muskogee,  
T. C. SANDERS, M.D., Shawnee.

### REPORT OF COMMITTEE ON CRIPPLED CHILDREN

The Secretary of the State Crippled Children's Society has cooperated with the Committee of the Medical Association in continuing to hold clinics for crippled children, throughout the State, in that the suggestions of the Committee have been thoroughly carried out. All clinics are held in cooperation with the local doctors of the community, and all transactions have been entirely ethical in their management. Letters and literature containing the names of the examining physicians have been handled in a manner that meets the requirements of ethical standards. The Committee has been consulted upon many occasions, for advice, and the Committee feels that its direction of the work for crippled children has been very satisfactory and beneficial.

WADE H. SISLER, M.D., Tulsa, Chairman,  
EARL D. McBRIDE, M.D., Oklahoma City,  
W. K. WEST, M.D., Oklahoma City.

### REPORT OF COMMITTEE ON CANCER STUDY AND CONTROL

Since the American Society for the Control of Cancer is so successfully carrying on a quiet educational campaign within our State upon cancer, your committee has not attempted any widespread, concerted work during the past year. We have, however, made a special request that each county society hold one full program devoted to this subject at some convenient time during the year. Many of our county societies have already held such a meeting and others are planning to do so before the year closes.

Leaflets furnished by the American Society for the Control of Cancer have been sent both to county societies and individual physicians; also, leaflets have been sent on request to many public health workers and individuals throughout our State.

Newspapers, too, have been furnished educational articles prepared by nationally known authorities upon cancer, which they have very graciously carried from time to time in their news columns.

The State Medical Journal has published numerous cancer articles during the past year, all of which tend to stimulate further interest and progress toward the solution of this great problem.

Notwithstanding the fact that certain newspapers have heralded at frequent intervals each year a more certain "cure has at last been discovered," this great problem still remains for the present or future research workers to solve.

EVERETT S. LAIN, M.D., Chairman,  
JAMES STEVENSON, M.D.,  
FRANK McGREGOR, M.D.

### REPORT LEGISLATIVE COMMITTEE

The Committee on "Public Policy and Legislation" does not have an extensive report to make.

In a meeting of a group composed of President Ferguson, President-Elect H. C. Weber, Secretary Thompson and a number of councilors, in Shawnee early in January, the question of Medical Legislation was extensively discussed. It was agreed that constructive legislation be not attempted at this time, but that the proceedings of

the legislature be followed and that the Committee should become active in case bills were introduced vitally affecting the physicians of the State.

President Ferguson, being in Oklahoma City, agreed to watch the proceedings of the Legislature and to call the Committee for action in case it became necessary to observe or combat any unfavorable legislation. Some very pernicious bills were introduced in the legislature, but never became imminent of passage. No call came from Dr. Ferguson and no legislative measures affecting the Medical Association have passed the Legislature.

You will see by this that our duties have been more of a negative than a positive nature.

J. M. BYRUM, M.D., Chairman,  
R. V. SMITH, M.D.,  
McLAIN ROGERS, M.D.

### REPORT OF THE COMMITTEE ON INDUSTRIAL AND CONTRACT PRACTICE

During the past year two movements in the State have arisen that the committee feels should be brought to the attention of the State Association.

In the first place an effort was made during the past Legislature to enact a law creating a State Industrial Insurance Fund to be collected by and administered by the Industrial Commission. This bill failed of passage. It seems to the committee considering this from the standpoint of medicine alone that the passage of such a law would be a step in the socialization of medicine in this State and would remove some of the present political counterbalances inherent in the present law. Such a law would be more amenable than the present one to political exigencies.

In the second place, a movement has been putting in its appearance in various parts of the State to furnish contract practice to individuals and families. This has taken several forms. At least two types have been noted. In one, an individual physician contracts to furnish hospitalization and medical care for a definite period of time. In the other a corporation, either a hospital or a group of physicians contract to do the same thing. Each enters into a written contract with the insured. In all cases either advertisement in public press or the sale of contracts through agents is employed. There are also three such organizations without the State that are selling these contracts within Oklahoma through their fiscal representatives, one in Kansas, two in Arkansas.

Inquiry has been made of both the American Medical Association and the American College of Surgeons as to their opinion concerning this practice. Both have condemned it as being contrary to the ethics of the American Medical Association.

The question further arises as to whether or not there is any breaking of the Medical Practice Act of the State of Oklahoma in the actions of any of these individuals or corporations. Various angles of the question are being drawn up and submitted to the Attorney General through the State Board of Medical Examiners for an opinion.

PAT FITE, Chairman,  
A. RAY WILEY,  
C. E. CLYMER.

### UNIVERSITY EXTENSION WORK

Mr. T. M. Beaird makes the following report:

1. Number of counties reached in medical work, 21.

2. Number of Physicians and Surgeons reached (in one or more showing), 917.

3. Number of other groups reached exclusive of physicians and surgeons, 411 (this includes medical students, interns, nurses, etc.).

4. Number of films owned by the Oklahoma State Medical Association, 3; namely: "Benign Prostatic Hypertrophy," "Acute Appendicitis" (professional), "Treatment of a Breech Presentation."

5. Number of reels of standard width 35 mm. professional films owned by the state association and distributed under the auspices of the University Extension Division, 5.

6. Actual showing time of the entire list of films, 1 hour and 20 minutes.

7. All films owned by the state medical association and distributed under the auspices of the Bureau of Visual Education of the University Extension Division are approved and sponsored by the American College of Surgeons.

8. The films as listed were produced under the direction and supervision of the following specialists in their fields: a. "Benign Prostatic Hypertrophy," Dr. J. Bentley Squier, Professor of Urology, College of Physicians and Surgeons, Columbia University; b. "Acute Appendicitis," Dr. Edward Martin, Philadelphia; c. "Treatment of Breech Presentation," Dr. Joseph B. DeLee, Professor of Obstetrics, Northwestern University Medical School, Chicago.

During the entire year such comments as "Films were excellent; we need more good work of this kind, and the Oklahoma State Medical Association is to be congratulated for its foresight." From Virginia comes this statement, "We note that the Oklahoma State Medical Association is purchasing the library and sponsoring the same through your office. We feel this is an excellent movement. Please give us details so we may present the same plan to our state association. Oklahoma, we understand, is the first in the nation to start such good work."

T. M. BEAIRD, Director.

### DIURESIS FROM WATER-SOLUBLE BISMUTH

P. J. Hanzlik, A. L. Bloomfield, A. B. Stockton and D. A. Wood, San Francisco (Journal A. M. A., April 27, 1929), in studying diuresis from water-soluble bismuth found that bismuth sodium tartrate, injected intramuscularly in doses of 0.03 gm., caused a prompt and well sustained diuresis in subjects with and without edema. This action occurred without demonstrable local or systemic reactions and apparently without injury to renal functional efficiency. The diuretic efficiency of bismuth sodium tartrate excelled that of merbaphen and of theophylline sodium acetate in the two subjects in whom these drugs were compared. The excretion of bismuth after bismuth sodium tartrate is prompt and more rapid and complete than after the insoluble and oil-suspended bismuth products, this being of practical importance in circumventing possibilities of harm from the stored bismuth of the latter.

## APPALACHIAN HALL

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An Institution For Rest,  
Treatment of Nervous and Mental Diseases,  
Drug Addiction and Alcoholism



Appalachian Hall wishes to announce that it has recently acquired and is now occupying the famous Kenilworth Inn as its new sanatorium. Kenilworth Inn was erected at a cost of more than a million dollars and furnished at a cost of three hundred thousand. Appalachian Hall is an institution for the treatment of nervous and mental diseases, alcoholism, drug habituation, and a place for rest and convalescence. Every luxury and convenience, private rooms or rooms en suite. Special department for rest cures and convalescents. Physiotherapy, Occupational Therapy, Gymnasium, etc., Volley Ball, Tennis, Croquet, Horseback Riding, Golfing, Five beautiful golf courses available to patients. Resident physicians on duty at all times, a corps of graduate nurses, especially trained for this work. Training School for nurses. For information and rates write: Drs. Griffin and Griffin.

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**OFFICERS OKLAHOMA STATE MEDICAL ASSOCIATION**

**President**, 1930-31, Dr. E. S. Ferguson, Oklahoma City.

**President-elect**, Dr. Henry C. Weber, Bartlesville.

**Secretary-Treasurer-Editor**, Dr. Claude A. Thompson, Muskogee.

**Meeting Place**, 1931, Oklahoma City, May 11, 12, 13.

**Delegates to A. M. A.**: Dr. Albert W. Cook, Tulsa, 1931-32; Dr. Horace Reed, Oklahoma City, 1931-32; Dr. McLain Rogers, Clinton, 1930-31.

**CHAIRMEN OF SCIENTIFIC SECTIONS**

**General Medicine**: Dr. Ben H. Cooley, Chairman, Norman; Dr. Henry H. Turner, Secretary, 1200 North Walker, Oklahoma City.

**Eye, Ear, Nose and Throat**: Dr. Ruric N. Smith, Chairman, Medical Arts Building, Tulsa; Dr. A. L. Guthrie, Secretary, Medical Arts Building, Oklahoma City.

**Surgery**: Dr. W. C. Vernon, Chairman, Okmulgee; Dr. Leonard Williams, Secretary, 1200 North Walker, Oklahoma City.

**STANDING COMMITTEES 1930-1931**

**Scientific Work**: Dr. R. M. Howard, Chairman, Oklahoma City; Dr. P. P. Nesbitt, Tulsa; Dr. A. B. Chase, Oklahoma City; Dr. C. A. Thompson, Muskogee.

**Public Policy and Legislation**: Dr. J. M. Byrum, Chairman, Shawnee; Dr. R. V. Smith, Tulsa; Dr. McLain Rogers, Clinton.

**Medical Defense**: Dr. L. S. Willour, Chairman, McAlester; Dr. Wm. Gallaher, Shawnee; Dr. F. M. Adams, Vinita.

**Medical Education and Hospitals**: Dr. A. S. Risser, Chairman, Blackwell; Dr. A. W. White, Oklahoma City; Dr. Fred Clinton, Tulsa.

**Medical Economics**: Dr. W. H. Bailey, Chairman, Oklahoma City; Dr. J. Hutchings White, Muskogee; Dr. T. C. Sanders, Shawnee.

**SPECIAL COMMITTEES 1930-1931**

**Tuberculosis Study and Control**: Dr. L. J. Moorman, Chairman, Oklahoma City; Dr. F. P. Baker, Talihina; Dr. R. M. Shepard, Tulsa.

**Conservation of Vision**: Dr. W. A. Cook, Chairman, Tulsa; Dr. C. B. Barker, Guthrie; Dr. Milton K. Thompson, Muskogee.

**Conversation of Hearing**: Dr. L. C. McHenry, Chairman, Oklahoma City; Dr. Chas. M. Fullenwidder, Muskogee; Dr. H. S. Brown, Ponca City.

**Venereal Disease Control**: Dr. Rex Boland, Chairman, Oklahoma City; Dr. Henry S. Browne, Tulsa; Dr. S. D. Neeley, Muskogee.

**Cancer Study and Control**: Dr. E. S. Lain, Chairman, Oklahoma City; Dr. James Stevenson, Tulsa; Dr. Frank McGregor, Mangum.

**Contract and Industrial Practice**: Dr. Pat Fite, Chairman, Muskogee; Dr. C. E. Clymer, Oklahoma City; Dr. A. Ray Wiley, Tulsa.

**Crippled Children**: Dr. Wade Sisler, Chairman, Tulsa; Dr. Earl D. McBride, Oklahoma City; Dr. W. K. West, Oklahoma City.

**Necrology**: Dr. Ellis Lamb, Chairman, Clinton; Dr. R. M. Anderson, Shawnee; Dr. J. S. Fulton, Atoka.

**Publicity**: Dr. C. A. Thompson, Muskogee.

**STATE BOARD OF MEDICAL EXAMINERS**

Dr. D. W. Miller, Blackwell, President; Dr. J. M. Byrum, Shawnee, Secretary; Dr. W. P. Fite, Muskogee; Dr. H. C. Weber, Bartlesville; Dr. W. T. Ray, Gould; Dr. L. E. Emanuel, Chickasha; Dr. Frank McGregor, Mangum.

**STATE COMMISSIONER OF HEALTH**

Dr. Geo. N. Bilby, Oklahoma City.

**COUNCILORS AND THEIR COUNTIES**

**District No. 1**. Texas, Beaver, Cimarron, Harper, Ellis, Woods, Woodward, Alfalfa, Major, Dewy, Dr. H. A. Lile, Cherokee. (Term expires 1932).

**District No. 2**. Roger Mills, Beckham, Greer, Harmon, Washita, Kiowa, Custer, Jackson, Tillman, Dr. Frank H. McGregor, Mangum. (Term expires 1932).

**District No. 3**. Grant, Kay, Garfield, Noble, Payne, Pawnee. Dr. Paul B. Champlin, Enid. (Term expires 1932).

**District No. 4**. Blaine, Kingfisher, Canadian, Logan, Oklahoma, Cleveland. Dr. LeRoy Long, Sr., Oklahoma City. (Term expires 1932).

**District No. 5**. Caddo, Comanche, Cotton, Grady, Love, Stephens, Jefferson, Carter, Murray. Dr. J. C. Ambrister, Chickasha. (Term expires 1932).

**District No. 6**. Osage, Creek, Washington, Nowata, Rogers, Tulsa. Dr. W. A. Howard, Chelsea. (Term expires 1932).

**District No. 7**. Lincoln, Pottawatomie, Okfuskeee, Seminole, McClain. Dr. Wm. M. Gallaher, Shawnee. (Term expires 1931).

**District No. 8**. Craig, Ottawa, Mayes, Delaware, Wagoner, Adair, Cherokee, Sequoyah, Okmulgee, Muskogee. Dr. F. M. Adams, Vinita. (Term expires 1931).

**District No. 9**. Hughes, Pittsburg, Haskell, Latimer, LeFlore, McIntosh. Dr. Leonard S. Willour, McAlester. (Term expires 1931).

**District No. 10**. Johnson, Marshall, Coal, Atoka, Bryan, Choctaw, Pushmataha, McCurtain. Dr. J. S. Fulton, Atoka. (Term expires 1931).

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**SITUATIONS WANTED** — Salaried Appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nationwide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

**FOR SALE**—Victor portable X-ray, 110 volts, 30 amps, spark gap  $4\frac{1}{2}$  inches. Can do any kind of emergency work. G. F. Vertebra or spine. For further information write Ed Barnes, Okeene, Oklahoma.

3-37

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See Description, Journal A. M. A.  
Volume XLVII, Page 1488.

A Scientific combination of Bismuth Sub-carbonate and Hydrate suspended in water. Each fluidrachm contains  $2\frac{1}{2}$  grains of the combined salts in an extremely fine state of subdivision.

**Medical Properties**: Gastric Sedative, Anti-septic, Mild Astringent and Antacid.

**Indications**: In Gastro-Intestinal Diseases, Diarrhoea, Dysentery, Cholera-Infantum, etc. Also suitable for external use in cases of ulcers, etc.

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# THE JOURNAL

OF THE  
OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV

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NUMBER 6

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## TERRELL'S LABORATORIES

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# THE JOURNAL

OF THE

## OKLAHOMA STATE MEDICAL ASSOCIATION

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### SOME PROBLEMS WE SHOULD SOLVE\*

HENRY C. WEBER, M.D.  
BARTLESVILLE

Words cannot express my feeling of gratitude to the members of the Oklahoma State Medical Association and especially to my very good personal friends, who by their work have made it possible for me to appear here this evening as President of this Association.

This has been one of my cherished dreams which I never expected would be realized; and it certainly is with a heart full of gratitude that I am here as your President. Doubly honored because in the manner in which it was given to me—unsolicited and uncontested—as I knew nothing about it until I walked into the meeting of the house of delegates, and was taken by the arm and introduced as President-elect. Honored, because it is only possible for this honor to come to so few of our members; also because of the outstanding men who have preceded me in this office. I am sure that each one of them must have felt as I do; proud and humble before this large assembly of medical men and realize the high purposes which this organization represents. I realize that this honor came to me through no merit of my own, and that I am representing the Oklahoma State Medical Association and the principles for which it stands, and for which I shall endeavor to carry on during the next year to the best of my ability.

There are many great things that have been accomplished by our Association in the past, and there are many more to accomplish in the future. When we stop and realize that this association is only about twenty-three years of age, and think of what it was during the first few years of its existence, and then in the same thought picture it as it is today, it is almost beyond comprehension that we could have made such rapid progress. Twenty years ago the University Medical School was not considered at all among the great

schools of the country. Now with the present faculty and clinical material and facilities for research work and teaching, it stands out as one of the best in the country and it is improving each year under a very able faculty, all composed of members of this Association. The graduates of this University obtain positions in hospitals and institutions of learning all over this United States. So we may be proud of our medical department, and should give them all the support we have in our power.

I think, and offer as a suggestion, that our teachers give a little more time to teaching the art of medicine in conjunction with the scientific side of it. Teach these young doctors how to treat each individual case as he finds it, instead of by some rule which he has heard of, or from some scientific deduction which he has figured out. I think this branch of teaching is neglected in most of our Universities at the present time. The patient comes to you seeking relief from disease or perhaps from a bed of pain, and he must have and has a right to demand that he be given something besides a perfect technique or laboratory examination. He needs treatment for his mind as well as his body. We are often too busy or too careless to remember that the decisions we make so casually may mean the difference between life and death to the patient who has come to us for relief and placed his all in our hands depending upon our skill and honesty to bring him through his affliction to a normal being. Let us not prove ourselves unworthy of this confidence, and give to him all the service we are able to give with the knowledge we have.

Looking back over the last few centuries, we find that there has been more progress made in medicine and surgery in the last fifty years than had been made in all time previous. Until the discovery of the cause of disease by Louis Pasteur in 1882, and the discovery of the antiseptic action of different chemicals by Lord Lister in almost the same year, we were groping around in the dark, and medicine was an art. Almost over night it was transformed. Many of our former teachings were cast aside, and causes of diseases were worked out scientifically, and

\*President's Address, Thirty-Ninth Annual Session Oklahoma State Medical Association, Oklahoma City, May 12, 1931.

the successful treatment was then made possible, and almost at once, preventive medicine had its inception, until now most of the terrible scourges which used to almost depopulate an entire country, are almost never heard of. Most diseases have been conquered and no longer have the chance to disrupt a whole community when a single case makes its appearance.

Another great stride that has been made in the last few years is in the care and treatment of the crippled children, who from birth have been prevented from making something of themselves whereby they could be self supporting and not become wards of the State. Centuries ago this was looked upon as the will of God, as a sign of His displeasure; and even now in some countries is still accepted as a fact. We now have in our country and in our State University, places where any crippled child, who has any chance to be benefited by any kind of treatment either surgical or medical, may receive such treatment free, and in this way we are having cured and returned to useful citizenship and self-support, a great many who were cast aside and allowed to spend their entire life as wards of the State. There are many wealthy men in the United States who have given freely of their money to endow research hospitals and build hospitals for the cure of crippled children; and in this great State in which there are so many wealthy men, none have seen their way open to endow any institution of this kind, and I think this is only because they have not been properly educated along these lines and shown what great good could come to the State by an endowment properly handled and safeguarded. I think a committee should be appointed whose duty it would be to get in touch with these men and get them to thinking along these lines, so that in the future we may receive some benefit from these vast fortunes as other older states have done.

Take Mr. John D. Rockefeller, for example, whose endowments have run into hundreds of millions of dollars, and have done more for the advancement of medicine and public health than many nations have done.

Referring to the crippled children's program which we have in this State, it is my opinion that it should be changed in some particulars, which would decentralize it's application somewhat, especially in designating who should do such work. I think the committee which has the designating of hospitals, and doctors do this

work, should familiarize themselves with the different doctors in each community and known for their ability to do certain kinds of operations coming under the crippled children's act, and designate these doctors whom they find competent to do certain operations, to do them in that community and hospital. This would save time and money for all persons interested, and they would not have to travel long distances and remain there on expense while convalescing, then friends would not have to go away from home to visit them. Liberalize the law which requires that no doctor can do any of these operations whose practice is not 60% of this particular specialty. I fully realize that all operations where there is much deformity, should only be done by a few men highly specialized in that particular line, and that these operations should not be undertaken by the regular surgeon. But there are many operations such as tonsil and adenoids, fractures and acute bone conditions which can be done well by some physician in most any town of any size; and then people would not have to travel long distances and be away from home for several days when it could be done at home just as well..

I think we should have a radical change in our method of handling the health department of our State. And in this statement I do not want to criticize our present health commissioner, who I think is doing everything possible to do for the State under the existing laws and practices. But we have in our constitution a provision for a State Board of Health to be appointed by the Governor; but this has never been vitalized by the legislature, and the health department has become a political institution to be turned completely over with each incoming administration. I think the legislature should be asked to pass a law vitalizing that provision in the constitution, so that the department may be taken out of politics and that a competent commissioner, thoroughly trained and qualified by experience to discharge the duties of this office and allowing him to remain in this position permanently, unless removed for cause. This would allow him time to organize each county health unit and would result in great good to the entire State in matters of public health and sanitation.

I now want to take up one of the hard problems that the individual doctor and hospital has to contend with in this modern day; and one that causes them much mental anguish and financial loss; this is the subject of highway accidents. A seri-

ous automobile accident happens and a femur is fractured, perhaps compounded; the patient is rushed to the hospital and doctors called, X-rays are made and the necessary treatment given and the patient placed in bed where he must remain for several weeks. Now in 75% of the cases the patient is not financially responsible; but he gets the same care as he would if he were a millionaire. He leaves the hospital and sues the party responsible for the accident and gets a settlement and leaves. The doctors and hospitals never receive one cent for all their care as well as for the expense in caring for him.

I think we should ask the legislature to enact some law that would protect us as the lawyers are protected. Or such as some states now have requiring any person who has an automobile to carry a certain amount of insurance which he receives from the state, and should be included in his payment of a license; or to pass a law making a doctor's and hospital bill a lien on any insurance or judgment he may receive, so that a claim may be filed, and the amount of the bill be deducted from his judgment and paid direct to the doctor. This would result in the patients receiving better care, for as it is now most doctors run away from highway accidents instead of going to them. I think if the bill were placed on the calendar and then if each county society would appoint a committee to see their Senator and Representative, and explain the condition to them, we would have no trouble in having it passed.

The subject of industrial medicine is one of the greatest problems the medical profession has to work out in the near future and we should give much thought and judicial consideration to all phases of the problems involved, so that when the time comes when we are confronted with the problems of state medicine or some modification of it, that we shall have ready for submission some plan for the care of these patients coming under this law, rather than being forced to accept some law with which we have had nothing to do as to its formation and which will only look upon one side of the subject.

Another problem which I think should be given special attention in this country is the training requirements for the various clinical specialties. There is a general belief that anyone putting himself up as a specialist in any one line should have had a minimum amount of training in that

line before he can call himself a specialist. Many European countries have some such requirements. Denmark seems to have the best plan, which is as follows: at the annual meeting of the medical association, a specialist committee is elected which consists of a member of the faculty of the University; a practicing specialist; a chief physician for a hospital and a practicing physician from the country. Each member serves three years and they work out the course of training for each specialty in consultations with the association of specialists in each field. The application for a specialist is made to the committee and they must pass favorably upon it before any member may advertise as a specialist. This would protect the public from physicians who have become specialists overnight, and would also protect the physician who has spent much time and money to prepare himself to do special work, and he should be protected.

There are many things which might be taken up which are for the good of the Association, but I will attempt to take up only a few of those that seem to me most important.

If we wish people to have the respect and confidence in us that we desire, we must make ourselves worthy of the same. Among the things we must do is get rid of any members who are not deserving of membership, and then being very careful not to take in any more who are not deserving of the privileges and opportunities that a membership carries with it.

As you all know there are many positions which cannot be secured unless you are a member of your medical society, such as appointments on the staff of recognized hospitals; insurance appointments, or any corporation work of any consequence; and many are wanting to join the society only to use the membership to obtain certain positions.

There is another condition which has been brought about by the State industrial law, putting the profession in a very bad light. This is the problem of giving testimony before the industrial commission in injury cases. We have some few doctors who are employed by insurance companies and other large companies who only look upon the patient from the viewpoint of saving money for the company, and who will let their testimony be prejudiced by that connection. Then we have many who do no work for companies and who only see the injury in the interest of the patient, and apt to exaggerate the disabil-

ity from his side. Now I think the thing we all should do is remember that when we raise our hand and swear before Almighty God that the testimony we give will be the truth, that oath means the same whether it is in the court of law or before the industrial commission and that we should swear to the truth, whether it be for or against the company or patient. And I think any doctor who does not do this is not worthy of a membership in the Association and should be dropped from its membership. I recently listened to an injury case being held before a State commission in which a man had had an injury to his foot. The company doctor swore that he had a complete recovery and could do any work he had done as soon as the foot was limbered up a little. Two other doctors for the patient swore that that man had a total permanent disability, and would never use the foot again. Now, there is no possibility of so wide a variation in judgment if they were both swearing the truth as they saw it. Is it any wonder that the commissions or juries will not pay any attention to the testimony of a doctor in damage suits? So let us get together and have a little education along this line and get back the respect and confidence of the public and Judges in our statements when we make them. I think that perhaps the best way to handle the cases is for the commission to have a board of three to five physicians whose honesty and integrity are unquestionable and let them examine each applicant, and then make the awards according to the findings of that board.

Another law which I think we should have is that law which would give us a coroner or some other officer who could order an autopsy done on all cases of death where there is any suspicion of illegal or criminal causes for that death. If we had such a law, it would help us get rid of the criminal abortionist and other questionable practitioners and would put the question of investigation of these cases under the officers whose business it would be to investigate and prosecute such cases. I also think it would be a good proposition for the State board of medical examiners in conjunction with the medical association to hire an evidence man whose duty it would be to get into different sections of the State and work with the aid of the county societies in securing evidence of illegal practice and then to file charges against the doctor of such crime, and thereby rid ourselves of the rotten timber which we have, so that when some terrible

thing comes out, the public cannot say, "Well, he is a member of your association."

Our State Journal is the official organ of this Association and deserves all the cooperation we can give it, so it may function as it is intended to do. It is one of the best State Journals in the country, and has shown steady improvement every year. It is prompt in reporting the activities of the State Association and other related organizations. It represents the medical interests in the scientific, economic, educational and welfare phases of the practice of medicine. It will print any scientific paper which is worthy of the space required and thereby give an opportunity for all members to receive the benefit of the paper. These things our Journal has done well and I think our secretary, Dr. Claude Thompson, should be congratulated upon the work he has done to make the Journal what it is, and should be given all the help possible to improve it from time to time.

I want to call your attention to one of the activities of the State Association which is the underwriting of the expense of having many men of wide reputation come into the State and hold clinics in different sections of the State, thereby making it possible for every doctor in the State who wishes to do so, to hear these men, it amounts to a short post-graduate course and should be attended by every member of this Association. In this way, you will be getting some personal benefit from your dues to the State Association.

Now, in concluding this paper, I again want to thank the entire membership for granting me this privilege of being your President. And while I have written this paper at random, I have touched the problems which I think of vital importance to each one of us; and I hope that during the coming year we may be able to bring some of them to a successful conclusion, and let us continue to serve those who are unfortunate, whether it be in the hut of the poor or in the mansion of the millionaire.

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CHAIRMAN'S ADDRESS, EYE, EAR,  
NOSE AND THROAT SECTION,  
STATE MEDICAL ASSOCIA-  
TION, 1931

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RURIC N. SMITH, M.D., Chairman  
TULSA

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Some one has stated that 80 to 90% of the deaths recorded are due to infection and this infection arises in some local point. These infections include those of

the heart, joints, kidneys, gall-bladder, lymphatics, stomach, intestinal tract and others. The primary foci of infection of the ear, nose, throat and mouth stand first in the causation of these secondary general infections. The prevention and removal of these local foci of infection is a large work for us as physicians treating those special parts.

Undoubtedly one of the first requisites in carrying on this work is a sound knowledge of the anatomical structures to be treated. It has been said that while "the times change, man is always the same." This is basically true, but we know that the anatomy of different individuals shows wide variations. Sinus cavities vary greatly and it is a common saying in doing mastoid operations that no two mastoids are found which are just alike. In the removal of tonsils the anatomical structures are not always identical.

The mucous membrane is one of the most important structures with which we have to deal in the treatment of diseased conditions of the ear, nose and throat. We are familiar with the variations of this membrane lining the different cavities. The maintenance of this structure in its normal state is an important element in the prevention of infections, the exposed membranes undoubtedly having greater immunity than those not exposed.

Invasive organisms produce chemical and physical alterations in the tissues and the most efficient factor against infection is the reaction of these body tissues. The destruction of the epithelial structure often permits entry, so that the protection of these epithelial coverings is of first importance. The drainage of material from the sinus cavities and the bronchi probably depends more on ciliary action than on gravity.

The chemical changes in the tissues of the body is something that we know too little about. Physicians have been accustomed to consider the normal structures and then the pathological. Today we are more and more compelled to consider the physical and chemical changes taking place in the body cells. I well remember my first lectures on physiological chemistry. The subject seemed very difficult, probably one reason because the material was not in routine text book form.

The resistance of individuals varies greatly, so that a normal person may escape infection, while another whose powers of resistance are reduced by disease

may receive a local or systemic infection. Unfavorable environment, endocrine disturbances, vitamin imbalance are factors which will lower the resistance of the individual. In some conditions there is an over activity of body cells, while in others there is an under activity. Lymphoid tissue seems more active in some cases than in others. In allergic conditions there is undoubtedly an over activity of the body cells, so that not only antitoxins to germs, but also antibodies for foods, pollens, danders, etc., are produced which results in a hypersensitivity in certain of the body cells. Increased knowledge of the chemical changes taking place in these body cells should be of great assistance in treating the clinical problems involved.

In the past there has occurred what has been termed epidemics of conservatism and radicalism in the treatment of these local foci of infection, so that discussion has centered about operations, technique, etc. Dr. Eugene Lewis states "Radical surgery in sinus trouble has failed to justify itself. It does not rest upon a rational basis. It has been largely conceived in an anatomic rather than physiologic ideations, and is fundamentally unsound," I remember asking a well known surgeon what his attitude was towards treating sinus conditions, and his reply was that he was either very conservative or very radical.

We are coming to think more and more of the patient as a whole. Diet, hygiene, and general environment are factors which must be considered. This applies particularly to children, where we so often find nutritional and developmental disturbances resulting in local troubles. Investigations have shown the unquestioned value of proper diet in nasal infections and sinus disease in adults, and particularly in children. Diet alone and drainage alone will not suffice, but these two must go together. Further investigations have shown that the structure and growth of the bones of the head in early childhood are dependent on a diet consisting of proper amounts of vitamins and mineral salts. The development of strong healthy children with marked natural immunity is a subject demanding our interest and best efforts.

The specific measures to be instituted in treating these local foci of infection are subjects in which we all are interested. Conservative measures should be instituted when good results can be obtained. In other cases more radical procedures are

necessary. In many border line cases conservative measures should be tried first and if these fail more radical procedures can then be instituted.

Some methods of treatment which formerly were highly recommended and used are now abandoned. Stock and autogenous vaccines are claimed by some men to be of great value.

Research work in the field of serology is going on all the time. Certainly some time and effort is necessary to be acquainted with the progress being made.

Many forms of lights are advocated and there must be a light for every ailment.

Tonsils are being removed and lymphoid tissue is being eradicated by electrocoagulation. This is a subject which undoubtedly calls for our consideration and understanding. The electric cautery is replacing the scalpel and diathermy is good for almost all diseased conditions.

Some understanding of the psychical side of the patient is often very essential. We think of the physical and chemical changes taking place in the body when so often the trouble is only mental, and often both mental and physical states of the patient are altered. It seems only reasonable to expect these changes to occur together.

Certainly the physician who keeps informed of the work done by the chemists, the research hospitals and the clinical laboratory workers, and at the same time looks after a busy practice is a very alert individual. We cannot all be geniuses but we can try to visualize the patient as a whole, somewhat understand the mental problems as well as the physical and utilize our best judgment and understanding in promoting the general welfare of the patient.

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#### A LACK OF APPRECIATION OF NEUROPSYCHIATRY BY MEDICAL MEN.\*

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BEN H. COOLEY, M.D.  
NORMAN

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There is a field of internal medicine that has been grossly neglected by medical men. Until about ten years ago there was very little to stimulate interest in the subject; and because of the meager knowledge of the manifestations, treatments were ap-

parently giving little if any results. However, I am glad to say that this very field of medicine has made greater advances and faster development than any other particular branch of medicine in the last decade. Neuropsychiatry is the field of which I speak, and I feel proud that our own institutions are contributing much to its advancement.

When the subject of neuropsychiatry is brought up the general medical men feel totally at a loss, and contribute little or nothing to its discussion. This, I take it, is nothing more than an admission of their ignorance of the topic. I will admit that there has been little to interest them in the subject in the past, but, gentlemen, that time is now gone and I am here to inform you that the time is now come for us to equip ourselves as well as possible for a better understanding of our nervous cases. Nervous cases are more numerous, head injuries are more numerous, and this situation will continue as time goes on.

We are living in a very complex age, when great demands are being made on our nervous systems; and those who are not blessed with sturdy nervous integrity, will fall. We have all seen the phenomenal rise of some young man to a responsible position, and have also seen him break under the strain. If any young man is not brought to the top in gradual steps to assume heavy responsibilities, he is sure to become a victim of some nervous disorder. Look back to last year at the time the stock market fell. We all noticed the great number of people who were unable to stand the strain, and who fell victims of nerves.

When a patient is suffering some symptoms of nervous origin and the treatment is at fault, results are not obtained. It is then time to avoid that overworked term Neurotic, which seems to be given all nervous people who do not respond to ordinary treatments. These poor people are far worse off than the person who presents some organic disease, as the latter usually gets satisfactory treatment, but the former are allowed to wander around from doctor to doctor until they are exhausted.

It is our duty to prepare ourselves to do such a patient a service. We cannot depend on specialists; they are too few and far between; and therefore we will not be benefited unless we care for them ourselves. I do not believe that there is a man here who does not see at least one patient a day

\*Address of Chairman of Section on General Medicine, delivered at Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 11, 12, 13, 1931.

who has symptoms of nervous origin that simulate some organic pathology of heart or gastrointestinal tract. These cases are numerous and simulate almost every disease there is. Walter Alvarez of the Mayo Clinic recently stated, "gall-bladder operations upon fussy, complaining, migranous women will have little if any effect," also that nervous high-strung, go-getter salesmen, who have high acid, do not yield very well to treatment. This all emphasises the fact that we should be on the lookout for the nervous elements that enter into the diagnosis, and try to see what part the nervous system is playing in the complaint of the patient. There are certain Neuroses and Psychoses that have as their first manifestations some somatic disorder. It is the medical man's duty to detect them early and treat accordingly.

In closing, I hope that the medical men will be impressed with this appeal and improve themselves with the latest advances in the field of neuropsychiatry so that they may intelligently cope with the various problems which will inevitably present themselves for analysis.

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### ACUTE APPENDICITIS\*

HORACE REED, M.D.  
OKLAHOMA CITY

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I have about reached the conclusion that if we are to make progress in lessening the mortality from appendicitis we should select propagandists from among those who have had it. With doleful voices we lament our apparently increasing mortality and lay the blame on the patient who takes castor oil or other cathartic.

An incident of sixteen years ago awakened me, and since that time I have asked each of my patients having a so-called fulminating type of appendicitis what he or she thought the trouble was at the onset. The replies have been almost without exception, "stomach trouble" or "indigestion." The first sign of acute inflammation of the appendix is pain in the "stomach" and this pain is not different from the impression we carry of the belly-ache of childhood.

The patient is always present when the

first symptom arrives. If he has not concluded from the location of the pain that he has "indigestion," or "stomach trouble," he gets strong support for such conclusion when he vomits what he assumes to be the particular substance he ate, and which he suspected as causing the trouble. When, like Will Rogers, we read the papers, we learn that a well-known prize fight promoter, sojourning for awhile in Florida, has indigestion, and he is conscious of having over-indulged in rich food. His stomach ache was a natural consequence. He waved aside the suggestion that he should have a physician or go to a hospital. He knew what he had. But a few days later something happened inside, then he went to the hospital, where, according to the papers, he died following an operation for appendicitis. And we read that a member of the President's Cabinet had just indigestion, in spite of which he continued to go to his office. Also the papers told us about the captain of a major baseball team, who would not let an attack of indigestion take him from his team-mates, who were struggling to get into first place as the end of the season approached. But the cabinet member and the captain both joined the prize promoter because each knew what his trouble was and acted accordingly.

If we are to lower the mortality, we must get to the patient before the attack of appendicitis. We must educate him. But before we undertake to give out information let us make sure that we know what we are talking about. I have never been more chagrined than when I read in a health magazine, which is sponsored by one of the greatest medical associations in the world, an article on acute appendicitis. This article, in describing the symptoms of acute appendicitis, properly states that pain is the first symptom and is invariably present. It then goes on to state that the location is "usually in the right lower quarter of the abdomen." Shades of Murphy arouse and protect us from such misinformation!

Not until the public has been properly instructed, perhaps through some public health organization, in the early signs and proper treatment of acute appendicitis, will there be any appreciable improvement in the mortality and morbidity.

\*A discussion by Dr. Reed of a paper delivered by Dr. Hardin at Louisville, Kentucky, last Fall, and reprinted from the April, 1931, issue of the Southern Medical Journal.

# SYMPOSIUM ON GALL-BLADDER DISEASE

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|--------------------------------------------------------------------------------------------------------------------|---------------|
| 1. Pathology and Diagnosis<br>J. T. MARTIN, M.D.                                                                   | Oklahoma City |
| 2. Common Duct Lesions<br>D. D. PAULUS, M.D.                                                                       | Oklahoma City |
| 3. Operative Aspects of Gall-Bladder Disease<br>A. L. BLESH, M.D.                                                  | Oklahoma City |
| 4. Postoperative Complications of Biliary Tract, Surgery, Their Prevention<br>and Treatment<br>JOHN W. RILEY, M.D. | Oklahoma City |
| 5. Disturbances of Right Urinary Tract Simulating Gall-Bladder Disease<br>BASIL A. HAYES, M.D.                     | Oklahoma City |

## SYMPOSIUM ON GALL-BLADDER DISEASE—PATHOLOGY AND DIAGNOSIS

**J. T. MARTIN, M.D.  
OKLAHOMA CITY**

It is my duty to open this symposium on gall-bladder disease, and I, a medical man, will be followed in the discussion by members of the surgical side of the house. It is pain that most frequently directs a physician aiding a patient to a particular part of that patient. Aside from direct trauma, the cavities of the cranium, of the chest, of the abdomen and, in the female, of the pelvis, are the usual sites of pain. Pain is either central or either side, with equal frequency, in all these regions, except the abdomen. Here the right-sided pain predominates. Twenty years ago the symptoms of pain in the lower right quadrant was the subject of many discussions as the same symptoms in the upper right quadrant is today. The dominance of the appendix in the lower right quadrant is no longer disputed, and its care is understood and governed by well defined rules. Perhaps, another score of years and the biliary tract disease will be as well understood and occupy a similar position in the upper right quadrant.

The pathology of disease of the biliary tract, either from a microscopic standpoint or from the point of operative observation, can be better discussed by others and I would call your attention briefly to the physiology of this region and the pathological changes occurring there. Bile, the secretion of this tract is both a true secretion and an excretion. It

is the physiological secretion of the liver to aid in the digestion of fats (emulsification) and stimulates peristalsis (gas pains?). It is an excretion as an eliminator of dead red blood cells, of protein metabolism (cholestral). It consists of water, salts, (sodium glyco and taurocholate) bile pigment (bilirubin and biliverden) and mucus.

The function of a normal gall-bladder is that of a store house, of a concentrator and a secretory organ. As a store house, it also performs an important function in stabilizing the hydraulic pressure in the biliary tract. Between feedings this reservoir fills for the peak load time of intestinal digestion. By an absorption of water, the gall-bladder concentrates the bile, and by adding mucus from its secretory glands, it completes the usual physiological function, save for a slight muscular effort in emptying itself. The most important change in normal physiology is the change in hydraulic or hydrostatic pressure in the tract.

Hypertension in the bile tract is caused by:

1. Obstruction
2. Increased "vis a tergo"
3. Inelasticity of the walls

Like all other cavities, obstruction to the outlet of the reservoir or store house, is by far the most common. It is well known in the urinary system that obstruction, especially beyond the bladder, starts most of the hypertension disorders. So, in the biliary tract, obstruction to the outlet of the common duct causes most of the hypertension in this tract. Stones are a frequent cause of this obstruction; and so

are external pressures from adjacent structures. I would call your attention to the diseases of the duodenum as a cause of obstruction to this tract. Attention was graphically drawn to this factor at the Dallas meeting of the American Medical Association a few years ago, and it has been our privilege to see disturbances of this organ followed by gross lesions of this tract and we consider, therefore, the study of the pathology of the duodenum as intimately related as the pathology of the biliary tract.

Infections in this region come from four sources:

- a. From below
- b. From the liver and bile
- c. From the lymphatics
- d. From the blood stream

Hypertension acts as a predisposing agent for infection from all sources, in this tract as it does in the urinary tract. Most of the infection comes from the first source, *i. e.*, it is an ascending infection, and the lymphatic transmission of infection probably ranks second. Infection from the bile itself is an open question today, though most workers believe the bile is not sterile. Blood stream infection in my opinion is rare.

#### DIAGNOSIS

The most valuable information with which to arrive at a diagnosis of disease in this region is a careful history. The first and most prominent feature in the history is pain. The second is gastric upsets, and the third, jaundice. Besides the usually typical pain of gall-stones and colic, you have the chronic referred pain, if I may use the words, commonly called gas pains. It is difficult from the histories to select the gas pains that are associated with biliary tract disease and I know of no way at present of determining such, except the skill and experience of the individual diagnostician. It must be remembered that the saponification of the fats is a function of bile and the interference of this function will disturb the motility of the intestinal tract and does cause the motor pain, commonly called gas pains. Besides this physiologic cause there is another, known as reflex, in which the nervous system transmits the disturbances from the bile tract to the intestinal tract.

Jaundice, as a sign, is of value when it occurs, and should be carefully looked for in all histories.

The physical examination for tender-

ness, distension and masses and the rigidity of the overlying muscles and the interference with the right sided deep inspiration should be observed; but so frequently the physical examination is unsatisfactory and we have to search with other tools to confirm the impression made from the history. The laboratory furnishes us many methods of approach, none of which stand out with an undisputed leadership. We have the icteric index, which in our hands has been a valuable aid. The Van den Berg test, both direct immediate and the indirect are favored by many, but we have not been satisfied with the results in our hands. The many dye liver function tests, besides the difficulty of use has not in our hands proven of much value. Duodenal drain with the study of the material thus obtained have given us much satisfaction. The microscopic study tells of a relative number of white blood cells, of the presence of crystals and the presence of cellular elements from the variously differentiated mucus membranes.

The flat X-ray pictures for stones are diagnostic in about forty (40%) percent of the cases of concretions. The method of Dr. Graham with intravenously or oral administered dye has been very popular, and we believe quite valuable in giving important physiologic information.

There still remains a considerable percentage of cases that exploratory operation is necessary to clarify and it is our hope that this percentage will shortly be much lessened, by the perfection of methods now used or by new methods yet undiscovered.

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#### COMMON DUCT LESIONS

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D. D. PAULUS, M.D.  
Oklahoma City Clinic  
OKLAHOMA CITY

Common duct lesions are usually supposed to belong entirely to the domain of the surgical consultant, on the other hand the patient who has been cholecystectomized is very prone to seek the advice of his medical consultant should digestive disturbances continue in spite of his operation, or should biliary tract disturbances arise some time after his surgical experience.

If the medical consultant has some accurate data on the surgeon's findings at the time of the gall-bladder operation it will materially aid in the difficult task be-

fore him. This data should include the following: 1. Was the common duct palpated thruout its course, and if a stone from the common duct was removed at the time of the cholecystectomy, was the common duct probed to make sure no stones were overlooked in the ampulla of Vater or near the duodenal end of the duct? 2. What was the condition of the liver in the immediate area surrounding the gall-bladder? 3. Was there evidence of localized hepatitis? 4. What was the condition of the head of the pancreas, was it hard? Was it enlarged? Degree of enlargement? Any adhesions to the stomach, duodenum or involving the area of the common duct?

Our knowledge of the interstitial type of degenerative disease of the liver and of chronic pancreatitis are indeed very meager. The surgeon is the only one who gets a chance to see living pathology. The medical man on the other hand, too often only the end results.

We know well what the end results of a progressive increase in fibrous tissue means. It is the same whether it effects the kidney, the liver, pancreas or what not. The relentless, progressive contraction until it squeezes the very life out of the encroached functioning cells. The liver is an organ with an abundant reserve and a localized interstitial hepatitis may cripple that organ but little.

The pancreas also is an organ with an almost limitless reserve. Chronic pancreatitis is still shrouded in a great deal of uncertainty. If surgeons regard a hard, indurated head of pancreas as indicating chronic pancreatitis, they will find it in 80% of adults. Doctor W. J. Mayo and Deaver report on the frequent findings of an enlarged, indurated or nodular head of pancreas, cases in which no symptomatic evidence existed of pancreatic inflammation.

Anatomically we recognize two forms: 1. Interlobular pancreatitis: This form may follow occlusion of the duct or an infection such as occurs in calculi, either biliary or pancreatic, with which organisms of the colon group or streptococci are associated. Even in advanced sclerosis of this type, the Islands of Langerhans are spared, may be present during life without any symptoms of pancreatic disease. Moynihan first called our attention to the fact that sclerosis of the head of pancreas may cause obstruction of the common duct. 2. Chronic interacinae pancreatitis

is characterized by a diffuse fibrosis penetrating between acini with little or no involvement of interlobar tissue. It may follow infection thru the duct but is much more common in association with cirrhosis of the liver or arterio sclerosis. Syphilis as a possible etiological factor should be kept in mind.

It is not my purpose to detail to you the symptoms and findings of the various lesions of the common duct which are described in both text book and literature, but rather to call to your attention the opportunity that exists to make valuable observations on both localized hepatitis and chronic pancreatitis in those cases that have been cholecystectomized and later on an operation for common duct lesions is necessary. This may be years after the primary operation and so gives us an added perspective of this condition. Only by this type of observations are we going to gain additional knowledge about chronic pancreatitis, that ill defined clinical entity or disease process about which we know so little and still less about its treatment.

The following cases will illustrate some of the questions involved.

#### CASE NO. 1.

Mrs. H., age 58, had recurrent attacks of gall-bladder colic for 20 years. Operation—cholecystectomy. Operation showed a gall-bladder of enormous size, greatly distended with sero-purulent material and filled with stones. The wall was thick and had a number of necrotic areas thruout. The common duct was thick, no stones palpable in common duct; head of pancreas very hard and nodular but apparently not much enlarged. The liver—no remarks as to condition. A catheter was placed in the stub end of the cystic duct to allow drainage for some time in hopes of reducing inflammatory condition of the head of the pancreas.

Seven years later she presented herself again with the following story: "Did well until two years ago, since when she has had more or less soreness in the upper right quadrant of the abdomen with frequent attacks of 'biliousness.' For the past year has had repeated attacks of chills followed by high fever for a day or two, would have general malaise and aching over the body for a few days then feel quite well. Slight icteric tinge of conjunctiva noted. Has had three attacks of chills, fever and biliousness in the past month. During the last attack was seen

by myself, temperature then was 101, slight icteric tinge to conjunctiva, some soreness and tenderness on pressure over the upper right quadrant but no pain."

**Operation**—One large stone, marble size, and several smaller ones with much putty material in common duct. The liver showed no evidence of hepatitis. Pancreatic head feels very much the same as seven years before.

Here then we have a patient having a gall-bladder disease for 20 years without any apparent damage to the liver. The pancreas shows a hard nodular head but no change seven years afterwards. Did not drainage thru the cystic duct help the pancreatic inflammatory process? Was anything gained by doing this or did she belong to that 80% of adults, so called by surgeons, with sclerosis of the head of the pancreas. Certainly she was free from all digestive disturbances for five years after the cholecystectomy.

#### CASE NO. 2.

Mrs. G., age 72, operation—chlecyctomy. This patient gave a history of repeated attacks of nausea and vomiting lasting several days at a time, no pain whatever during attacks, no fever, but noticed a yellowish tinge of conjunctiva after each attack. Duration five months. Operation—several biliverdin stones found, the gall-bladder wall was quite thick, liver normal, pancreatic head feels normal, common duct palpated normal, gall-bladder drained only, on account of general condition of patient at age.

Five months later the patient returns with the following story: "Following the operation bile drained freely until three months ago when drainage became blocked. She would have chills and fever. On opening drainage tract temperature would rapidly come down to normal. This repeated itself several times indicating common duct obstruction as the patient would also become slightly icteric. Finally drainage ceased, wound healed, stools normal color, no jaundice, and patient felt well.

Present trouble: One week ago became jaundiced without chills or fever or pain, vomited the last few days. While under observation developed a chill followed by high fever which rapidly returned to normal. Operation—no stones in common duct but the pancreatic head now enlarged to the size of a medium sized orange. The gall-bladder was attached to the stomach. Recovery uneventful. This was three years

ago. Since then has been in fairly good health except for pains above the umbilicus after meals, especially heavy meals. Has had three attacks in which pain was rather sharp and associated with vomiting for a few hours. At one time had temperature to 99.8.

The question arises in this patient as to whether a stone was overlooked in the common duct in spite of thorough investigation. Should the gall-bladder have been removed in spite of considerable risk. What was the reason for the rapid development of chronic pancreatitis? Was the common duct obstructed by an overlooked stone or from the great enlargement of the head of the pancreas? Personally I am inclined to the latter view.

#### CASE NO. 3.

Mr. V. S., age 47, rather interesting case. In September 1923, patient first noticed gradual onset of jaundice, grew progressively worse, consulted many physicians without relief. Many Wassermann tests were made which were negative. Never had any pain with his illness except perhaps a little discomfort in the upper abdomen just above the umbilicus and also over a corresponding area in his back. Pain seems to go right thru the abdomen. Finally he went to Hot Springs, Arkansas, where he stayed 2½ months. Was given intravenous "neos," without improvement. Finally he went to Chicago and consulted a world famous gastro-enterologist who kept him under observation for one month. Exploratory operation was advised and accepted. A very hard nodular pancreatic head was found blocking the end of the common duct. He suspected carcinoma of the head of the pancreas but thought he might be mistaken and that it might be a chronic pancreatitis. The gall-bladder was attached to the stomach. Recovery was uneventful, jaundice disappeared.

In January, 1927, he went back for a check-up. Duodenal tube in stomach, no bile; in duodenum plenty of bile. Conclusion—common duct must be opened again.

He first consulted me in May, 1927, because he had some symptoms like an onset of his original trouble, that is, the same kind of pain. He tires quite easily, stools are greasy and not of good color. Condition gradually became worse, vomited practically everything he ate so that by December, 1927, he had to have a gastro-enterostomy because the tumor was so large it interfered with food going thru the duo-

denum. From May to December, 1927, was almost under constant observation by myself. Recovery from operation good, felt fine, could eat what he wanted.

In July, 1928, he had the same type of pain as before, which has gradually gotten progressively worse. By August he was losing weight rapidly and becoming somewhat anemic. In September, 1928, he was operated a third time. This time there was no question that the man had a carcinoma. Multiple nodules thru the liver, one removed for section which showed carcinoma. The same mass as previously noted was around the head of the pancreas. The carcinoma might have originated in the ampulla of Vater or bile duct. Patient had several severe gastric hemorrhages and died October 27, 1928.

Here is a case of chronic pancreatitis with obstruction to the common duct followed over a period of five years which finally terminated in a carcinoma causing exitus of patient. The cholecyst-gastro-enterostomy however had given him relief for four years before the condition caused him to seek medical aid again. If the pancreatitis was progressive, why didn't he have symptoms?

There are a host of other questions one might ask that are as yet unsolved problems.

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#### OPERATIVE ASPECTS OF GALL-BLADDER DISEASE

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A. L. BLESCH, M.D., F.A.C.S.  
President Oklahoma City Clinic  
Chief of Staff, Wesley Hospital  
OKLAHOMA CITY

The question of surgical treatment and the technique of operation in gall-bladder disease, as elsewhere in surgical practice, depends largely upon the pathology encountered.

The question of when to operate is somewhat in the state of flux that is met with in appendiceal surgery.

The surgery of the gall-bladder has to do specifically with (a) the gall-bladder, (b) the ducts, (c) the pancreas, and (d) sometimes the stomach. These organs are frequently associated in pathological sequences for the reason, as Dr. W. H. Mayo aptly said many years ago, "that they are unfortunate in having the same terminal facilities."

First we shall consider the surgery of

the acute primary and the acute recurrent conditions of the gall-bladder. The inflammatory reaction in these cases may vary from a mild catarrhal form with or without stones, to the thick-walled, gangrenous or phlegmonous types in which the patient shows serious illness. To the surgeon who believes in immediate operation in the acute condition in all their variants, the perforating lesion may be included here.

Shall we, or shall we not operate upon these cases at once? Right here there comes in a division of professional opinion. To be sure everyone believes in immediate operation in the perforating case, but in the phlegmonous or gangrenous and the empyema cases shall we move surgically immediately and if so how? Shall we if we operate at once do an "ostomy" or an "ectomy"?

Some years ago the writer ran a series of cases in which he operated at once and where possible an "ectomy" in contrast to an equal series in which operation was delayed until the blood count and symptomatic reaction had in a measure subsided, attempting to bring them to a so-called favorable interval.

Mortality and morbidity considered, this ran quite in favor of immediate radical rather than delayed so-called conservative.

Personally I cannot see the logic of temporizing with a gangrenous gall-bladder, some of them however because of the swollen condition and the edema about the cervix cannot be safely removed because of the difficulty of hemostasis, but invariably those patients in whom removal could be done did better than those that removal was surgically not feasible. This is also to say nothing about the "ectomy" which later has been necessary.

The technique of removal of a swollen, thickened, gangrenous, gall-bladder however, is different from that of the ordinary catarrhal bladder. It should be removed from without in, rather than from within out.

A device that has helped me often in a gall-bladder which seemed unsafe to remove in the usual way is that of trimming it down to the level of the liver on both sides after first splitting it open. This simple maneuver gets away with most of the gangrenous material. The remaining strip of mucous membrane can usually easily be peeled out. Hemorrhage along

the cut edge can be easily controlled with a lock suture.

It seems to me that an "ectomy" is always to be desired over an "ostomy" except where the question arises of biliary duct involvement which already constitutes or has the potential of leading to stricture. A cholecyst-gastrostomy for diverting the bile into the gastro-intestinal tract is much more simple and safe surgery than any common duct reconstruction or anastomosis or than hepatico-gastrostomy or duodenostomy. As to ectomy and ostomy again it may be mentioned that at times the gall-bladder is the best available means of draining although indirectly, the pancreas.

A positive indication for the removal of the bladder is of course a permanently obstructed cystic duct, an ostomy here would lead to a permanent, painful, recurring fistula.

It does not occur to me that there is any controversy as to the operation of choice in the chronic gall-bladder conditions. I think the surgical mind is almost if not quite a unit in favor of ectomy.

In the matter of recurrent attacks after operation, which I am quite sure have come to humiliate all of us bringing operation more or less into disrepute, it is my belief that operation has been done under a mistaken diagnosis or that the disease has progressed thru neglect to serious hepatic injury or some obstructing factor, stone or other, has been over-looked. Also in uncured choledochitis the writer can see no reason why stones cannot form in the ducts admitting that the common origin is the gall-bladder.

A mistaken diagnosis is possible. The writer has seen the female breast removed under the diagnosis of cancer when the real trouble was merely an intercostal neuralgia and the removal of infected tonsils would have been far more logical and the patient would have stood a chance for relief which a mammectomy did not offer.

In a like manner I have seen a right intercostal pain closely mimic a gall-bladder attack and have been guilty of being deceived and operating myself at least once, I hope not more than that.

Acute duct conditions consist mainly of sudden stone impactions or of stones in transit. Impactions of slowly moving or of stones lodged soon assume the chronic phase, the clinical picture of which is quite

familiar to all. It is important that impactions of stones or putty like derbis be removed by choledochotomy promptly, thereby avoiding sequelae such as chronic stricture. None but hopelessly diseased gall-bladders should be removed without first demonstrating the patency and competency of the common duct. It may be needed to short circuit the bile into the gastro-intestinal tract. How is the common duct to be explored? With a finger in the foramen of Winslow, permitting palpation of the duct between the thumb and fingers is ordinarily sufficient for the trained touch to detect stones. Prolonged or recurring attacks of jaundice may require more than this, that is, opening and probing of the duct. Also prolonged jaundice will require special preparation of the patient for operation.

Stones lodged in the ampulla of Vater may be approached by the transduodenal route or from behind by mobilizing the duodenum. My preference has been transduodenal, using the fingers of the left hand inserted thru the foramen of Winslow, behind the duodenum as a darning ball.

Finally in-so-far as the acute conditions in this region are concerned in our Clinic, we consider an acutely inflamed gall-bladder whether gangrenous or not, a surgical emergency.

*Chronic conditions* are to be thought of as having a distinct pathological bearing on (a) the liver, (b) the pancreas, (c) the stomach, and (d) the appendix.

Interstitial hepatitis spreading fan-wise from a diseased gall-bladder as a nidus of infection is a common operating table observation in our Clinic. In many old cases this has gone so far before operation as to cause permanent disability.

Chronic pancreatitis involving mostly the head of the organ, sometimes to an extent sufficient to obstruct the common duct is not uncommon. Whether this occurs by direct extension along the ducts or thru the lymphatics is of academic interest so far as this paper is concerned since the only hope of relief lies in the removal of the nidus of infection and thorough drainage either external or internal.

The influence of chronic disease of the gall-bladder and ducts on the stomach is largely functional, probably reflex. Rarely it is associated with ulcer. On the contrary the writer has seldom operated upon

a chronic gall-bladder disease that has not been associated with a demonstrable chronically diseased appendix. This is not nearly so frequent the other way around.

In chronic duct obstruction from long residual stones, secondary stricture due to cicatricial formation and contraction is a formidable possibility. It is quite certain to my mind that this condition is sometimes the cause of failure after removal of stones and drainage. This is a valid reason for caution in removing the gall-bladder. Likewise in duct obstruction due to compression from a chronic pancreatitis the gall-bladder is the most available source of drainage either external or internal, hence it should not be ruthlessly sacrificed to any set plan of operation.

But in the absence of indications for conserving this organ, we feel sure that in chronic as in acute conditions the gall-bladder should be removed as the usual primary source and continuing factor of infection.

*Post-Operative Recurrences* have been due so far as our experience shows, to stones over-looked at time of operation, to stricture of choledochus secondary to long indwelling of stones, to pancreatic obstruction over-looked at time of operation, to secondary stone formation, to irreparably diseased liver and to a diseased gall-bladder upon which an ostomy has been done where an ectomy should have been done.

Some of these recurrences can be relieved by operation, some cannot. For some of them the surgeon may be to blame, for some of them not; but the fact of their occurrence and the reasons thereof should be kept in mind by the surgeon always when operating.

Diagnosis has been considered outside the domain of this paper. The paper itself is based entirely on the work of our Clinic extending over many years and comprising many cases.

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#### POST-OPERATIVE COMPLICATIONS OF BILIARY TRACT SURGERY, THEIR PREVENTION AND TREATMENT

JOHN W. RILEY, M.D., F.A.C.S.  
OKLAHOMA CITY

The surgical attack on the biliary tract carries with it more responsibility, more danger and the possibility of more complications than any surgery with which I am familiar.

I believe that this is due to our lack of knowledge concerning hepatic function; our inability to completely visualize pre-existing pathology; and, lastly, to accidents that occur to the bile ducts at the time of the operation.

Gall-bladder surgery calls for greater technical skill and presents more problems for immediate accuracy of judgment than any other branch of surgery. The after treatment also has its own grave problems. The pre-operative preparation of patients with obstructive jaundice is now a well established surgical therapy.

Walters reports that more than 15% of the patients with jaundice died from intra-abdominal hemorrhage while but 6% of those without jaundice, died of intra-abdominal hemorrhage. This bleeding was from oozing, from traumatized tissue, and at autopsy, no exact source of the hemorrhage could be found.

The suggestion of Lee and Vincent to use 5-10 cc. of 10% calcium chloride for three consecutive days to shorten the coagulation time of the blood has been generally accepted. It not only lowers the coagulation time of the blood but also decreases the toxemia produced by the circulating bile pigments.

Groves and Vines have stated that the administration of calcium salts by mouth has no influence upon the blood calcium.

Cushny also states that the small quantity of calcium absorbed from the alimentary canal has no obvious effect. Therefore, the intravenous method of administration of calcium is to be preferred. Lee and Vincent pointed out that the duration of the reduction in the coagulation time following each injection to be about three days. The intravenous use of 25% glucose both before and after gall-bladder operations has been shown to be of definite value in carrying the patient over the danger zone.

Many of the patients who must submit to an operation for gall-bladder disease, have been martyrs to their disease for years. Stones may have escaped into the common duct or passed upwards into the hepatic ducts. Biliary cirrhosis may have developed, and as a result, the functional activity of the hepatic cells may have been impaired.

Hepatic insufficiency and acidosis are difficult problems to master. We have come to recognize two types of hepatic insufficiency. In one we find that the

amount of bile discharged is greatly reduced; jaundice deepens; the mind becomes clouded; vomiting develops; the pulse becomes slower and the patient more enfeebled; drowsiness, coma, and a steady increase in the blood urea; renal failure consecutive to hepatic failure is then the cause of death.

Then there is another type in which appears after a normal course of 3 to 8 days, restlessness, great prostration and muscular weakness; the bile becomes copious, thin and pale; jaundice is not increased; vomiting of a mild type and blood urea low. This type is due to failure of liver function.

#### INJURIES TO THE COMMON DUCTS

These injuries are usually considered to be due to:

1. Insufficient exposure, causing failure to recognize the cystic and the hepatic ducts.
2. Traction on the gall-bladder, causing angulation, with clamping of a part or the whole of the hepatic duct.
3. Bleeding from an unseen point, resulting in a blind effort to clamp an invisible vessel so that the duct is clamped or tied off.
4. Inaccessibility of the duct, due to a distended, inflamed or thickened gall-bladder which causes a marked shortening of the cystic duct.
5. Congenital abnormalities are also found to be a cause of this accident.

Eisendrath describes these abnormalities as follows:

1. In 75% of the cases, the cystic duct unites with the hepatic duct at an acute angle.
2. In 17% it may run parallel to the hepatic duct.
3. In 8%, the cystic duct makes a twist in front of or behind the hepatic duct.
4. Occasionally there may be accessory hepatic ducts which may empty into the common or cystic ducts or into the gall-bladder. Moynihan reports this anomaly as occurring in at least 15% of all cases.

I believe that this knowledge should suppress the attempt to close the abdomen after cholecystectomy. These anomalies

are bound to continue to be a source of danger and complications.

Eisendrath found that the cystic artery may be doubled in 12% of cases. It may arise from the gastro-duodenal artery, a branch of which passes across the front of the common duct in 76% of the cases. The right hepatic artery lies behind the hepatic duct in 70% of the cases; in 12% it passes in front of the right hepatic duct; in 10% it runs parallel to the cystic duct; in 8% it crosses the right edge of the hepatic duct or forms a ring around the hepatic duct. Moynihan remarks, "It is quite evident that unless unremitting care is exercised that it is easily possible to ligature the right hepatic artery instead of the cystic duct. A cystic artery that appears larger than normal or one that has a hump in it is often the right hepatic artery."

Ligation of the right hepatic artery in a patient whose liver cells are already damaged as a result of infection may be a serious or even a fatal matter.

While these anatomical abnormalities are to be kept in mind, the fact remains that the accident by far more frequently occurs in the absence of these abnormalities than as a result of them.

The site of the injury is usually at the junction of the cystic and the hepatic ducts, or the main hepatic duct above this point, and less commonly, of the common duct.

Methods of repair are numerous and, of course, the procedure of choice will depend upon the condition found at the time of the operation. Recurrences of symptoms are reported following all methods.

Methods of repair practiced are:

1. An end-to-end suture of the damaged duct, either with or without drainage, by means of the introduction of a T tube; or a tube extending through the ampulla of Vater; or a tube leading through the stricture and coming out through an opening in the common duct below the stricture, and then lead out through the abdominal wall.
2. A division of excision of the stricture with the use of a tube in any of the previously mentioned proceedings.
3. Repair over a tube with an attempt to use the round liga-

- ment—the liver, the intestine or the neighboring peritoneum of the omentum to replace the missing portion of the duct.
4. Hepatic-duodenostomy with the implantation of the remains of the cystic duct into the duodenum or stomach over a tube, more rarely into the jejunum or even into a segregated loop of small intestine.
  5. Hepatic-duodenostomy with an attempt at partial reconstruction of the duct out of a flap made from the duodenal wall, or a suture of the lower edge of an opening in the duodenum to part of the stump of the duct, the upper edge being sutured to the liver capsule.
  6. The implantation of the sinus into the duodenum or stomach.

Case reports from various operators seem to show that best results follow the suture of the ducts when possible. Hepatico-duodenostomy appears to be the second best method. Recurrences of symptoms may occur after all methods, even after the patient has been apparently well for months or years. Reoperation has been necessary in many cases. Strictures of the common duct may occur quite apart from trauma.

Moynihan believes that the congenital cases are a part of the disease which has been described as congenital obliteration of the bile ducts.

It is his belief that the disease is primarily instituted during fetal life by poison derived from the maternal circulation and conveyed to the liver of the fetus, and that a combination of cirrhosis and cholangitis is set up. The result is an obliterative cicatrization of the ducts.

Judd believes that the same condition could be started in an adult, independent of any inheritance. He is of the opinion that an inflammatory process throughout the ducts is the real cause of many of the common duct stones.

Stone in the common duct is a complication of cholecystitis as, with few exceptions, all common duct stones originate in the gall-bladder. Such a stone may be overlooked at the time of cholecystectomy. Careful palpation of the common duct should be a routine procedure in all opera-

tions for cholecystitis. The principle of thoroughness is more important in this special field of surgery than in almost any other.

After removal of the stones, the common duct is drained with a T tube, the lower end of which however does not extend into the duodenum. This T tube should be of small diameter, and thus avoid pressure necrosis of the mucosa of the duct, and the arms of the tube within the duct should be of only sufficient length to aid in retaining the tube. Drainage may be maintained for a period varying from ten to twelve days to several weeks, depending upon the amount of infection present. This tube is easily removed, and if made of good material will not deteriorate if permitted to remain for several months.

Varying degrees of cholangitis are probably always associated with cholecystitis and common duct stone. In acute and suppurative cholangitis, the surgical procedure should be the least possible consistent with immediate relief, which is best secured by biliary drainage. Lahey reports in his series that the incidence of bile duct difficulties demanding exploration was 19%.

#### CONCLUSIONS

Gall-bladder surgery is always fraught with danger. It is especially so in the jaundiced patient. Careful preoperative preparation should be instituted.

The anomalies of blood vessels and ducts should be recognized and inasmuch as 15% of cases may have an anomalous hepatic duct, no abdomen should be closed after cholecystectomy.

A complete visualization of the ducts will materially decrease the accidents that have been reported.

One must be prepared for recurrences of symptoms after any type of duct repairs.

Common duct stones are most commonly due to gall-bladder stones that have slipped into the common duct and overlooked at the time of cholecystectomy. Silent common duct stones evidently do occur and demand especial thoroughness for their recognition and removal.

## DISTURBANCES OF RIGHT URINARY TRACT SIMULATING GALL- BLADDER DISEASE

BASIL A. HAYES, M.D., F.A.C.S.  
OKLAHOMA CITY

In a symposium like this there is a definite place for the urologist. Even at operation there arise many confusing cases wherein the diagnosis between gall-bladder and kidney pathology is exceedingly difficult. How often does the surgeon, after opening the abdomen, palpate the gall-bladder and wonder if after all it was the true cause of the patient's symptoms. Those of us dealing with kidney diseases can with profit call to your attention a few of the conditions which may give rise to symptoms resembling those of bile tract disease.

The ordinary symptoms brought on by disturbances of the gall-bladder may be briefly enumerated as follows:

1. Pain in the right hypochondrium which may or may not be referred through to the back or up to the right shoulder.
2. Tenderness in the right hypochondrium which may be so slight as to be unnoticed by the patient and which can be elicited only after a careful examination.
3. Muscular rigidity in the right hypochondrium which is usually fairly definite.
4. Possible tumor in the right hypochondrium which may or may not be tender to pressure, depending on the chronicity of the disease.
5. Digestive disturbances such as nausea, flatulence, dyspepsia, pain in epigastrium, etc.
6. Jaundice—not constant and may be entirely absent.
7. Fever and leukocytosis in acute cases.
8. Hematuria may occur particularly in jaundice cases or following a gall-stone colic.

Any one or all of these signs or symptoms may occur in a given case and may reach any degree of severity. If one were to change the title of this discourse and merely review the above tabulation of symptoms it is readily seen that leaving out jaundice it would be quite possible to think of kidney disease almost as quickly as of gall-bladder disease. Bearing the

list in mind, let us review the various urinary tract disturbances which may give rise to similar clinical pictures, as well as the points by which we may differentiate them.

*Movable Kidney* is one of the commonest ailments giving rise to pain in the right hypochondrium. Particularly is it found in the female sex (22% of all women) and especially in those who have borne children. It is said to be more frequent in tall, slender individuals and to be somewhat induced by the loss of fat in the abdomen. It is also partly caused by loss of tonus in the abdominal muscles, hence the condition of the female abdomen after childbirth presents a fertile field for the development of this disease. The kidney may be merely ptosed in its normal retroperitoneal location, with its mobility consisting of an increased radius of motion downward, or it may be attached by a long mesentery-like fold permitting it to become a true intra-abdominal organ with a wide radius of motion laterally or horizontally. This mobility may cause various circulatory, static, or obstructive conditions which tend to increase all the symptoms flowing from it. For example, a ptosed kidney may develop angulation of the ureter with consequent obstruction to the outflow of urine and the development of a hydronephrosis. It may, being ptosed or displaced laterally or medially, produce a pull on the blood vessels or nerves supplying it with consequent pathological changes in that portion of the organ whose blood or nerve supply is interfered with. By reason of its displacement it may get into a situation where pressure atrophy of certain portions of it will develop, with compensating hypertrophy of other portions. These conditions can in turn give rise to obstructive, congestive, ischemic, ulcerative, or embolic sequellae. Many cases of so-called simple pyelitis when thoroughly investigated by the urologist are found to be due to abnormal mobility of the kidney without other visible change. In such a case infection has developed as the result probably of lowered resistance due to decreased blood or nerve supply and not as the result of obstruction. In other cases infection develops within a hydronephrotic sac and produces eventually a massive infection known as pyonephrosis which practically destroys the kidney. Special types of infection with stasis may give rise to the development of stones within the kidney or ureter, which in turn usu-

ally produce severe symptoms. Summing up, movable kidney may occur in all degrees of simplicity or complexity. It may merely give rise to slight dragging pain while it remains a healthy secreting kidney or it may develop a simple pyelitis, hydronephrosis, stone or all three.

The symptoms of movable kidney have been known for many years and were particularly well described half a century ago by Dietl. The commonest symptom is pain which is mentioned as a constant dragging pain in the side and back. It is felt more frequently on the right side. It may be of dull aching character or at times may become sharp and cramp-like. It may radiate downward along the course of the ureter, and occasionally is referred between the shoulders. It is most often felt in the upper right quadrant of the abdomen, but may be noticed in the lumbar region, especially after the patient has been standing upright for some time. During severe attacks there is considerable rigidity of the anterior abdominal muscles, which cannot be differentiated from the rigidity caused by gall-bladder disease, and colicky pains further tend toward confusion between the two. At these times it is difficult to palpate the kidney. Accompanying the pain and rigidity, reflex digestive disturbances are very common. The usual form is dyspepsia and loss of appetite, though there may be burning sensations in the epigastrium, vomiting, or constipation. Vague abdominal distress, loss of strength, bad taste in the mouth, easy fatigability, and nervousness are all frequently seen and may be out of all proportion to the actual anatomical lesion. Associated with the ptosis of the kidney may be a ptosis of the ascending colon, with corresponding stasis, flatulence and pain in the region of the appendix. Most of these patients undergo appendectomy sooner or later without relief of symptoms.

Tenderness is present both in front and back in both movable kidney and gall-bladder disease. As a rule it is not so marked in movable kidney as in gallbladder, and can be better elicited by bimanual palpation, while gall-bladder tenderness is definitely more marked in front and when the liver is pushed down by deep inspiration. There is a difference in the type of pain, also, in that the gall-bladder pain is definitely a sharp one localized in and around the right hypochondrium, while bimanual pressure on the right kidney

produces an indefinite sickening sort of feeling not well localized.

The presence of a tumor in the gall-bladder area does not in any manner mean that one is feeling gall-bladder or liver. Fifteen years ago I dissected a cadaver in which both kidneys were true intra-abdominal organs, being attached by long mesenteric pedicules, and having a free range of motion of at least six inches either way laterally or vertically. These were true floating kidneys. I have seen in thin individuals cases where the kidney could be felt as well or better in front than behind, and I recall one case where a gall-bladder was packed so full of stones and was so large that it resembled a kidney in size and shape.

If simple movable kidney can give rise to so many signs and symptoms, how much more can advanced pathology such as *hydronephrosis*, *pyonephrosis*, or *nephrolithiasis*. In such cases the pain may be exceedingly severe and the entire right side may be tender and rigid on examination. There may also be toxic absorption, with yellowing of the sclerae, coated tongue, fever, and the patient insisting that his liver is out of order. All these may be present, with a kidney full of pus, yet nothing showing in the urine. I had such a case this year, wherein the ureter was blocked off at the ureteropelvic junction and all the urine was being secreted by the opposite healthy kidney, hence was perfectly clear. In these cases it is very rare for the kidney to be outlined bimanually because it is merely a soft distended sac, which has not enough body to it to be palpable from surrounding structures. This makes it doubly hard to rule out the tenderness from that which would be felt in the same general region if the patient were suffering from gall-bladder disease. In simple hydronephrosis without infection there will be many times where the only urinary change will be an occasional hematuria. This will be most frequently seen after blockage of the ureter such as in Dietl's crises, where the patient suffers terrible pain and often has reflex digestive disturbances and sometimes fever. Therefore unless there is massive hemorrhage or a great deal of pus, the urinary examination will not be of great differential value. It is never of great value unless interpreted in the light of all the considerations mentioned above.

A third group of urinary tract disturbances which can be confused with gall-

bladder disease is the so-called *perinephritic abscess*. This condition is often not *perinephritic* at all but is merely the sequel to an ulcerative process from within the kidney which has progressed far enough to break through the pelvic or parenchymal wall allowing the pus to escape outside the kidney where it is walled up by the capsule of pseudo-omental fat which surrounds the organ. Most of the cases that I have seen have arisen from just such a cause. There has been a previous hydronephrosis with infection and possible stone formation, which broke through and caused the larger abscess on the outside. There can be hematogenous infections alighting in the perirenal area which have been transported from some distant focus or arising from a general bacteriemia. The characteristic thing is that the patient is quite sick and has a high fever, with pain and tenderness in the subcostal region. If the abscess is diffuse, there will be pain, tenderness, rigidity, and bulging of the lumbar region, with or without urinary changes. If the abscess is localized to the upper pole or in front, the symptoms may be referred to the anterior abdominal wall or upward toward the shoulders and will greatly resemble those of an acute gall-bladder infection. If the pus accumulates at the lower pole or becomes very large in amount, there will be contracture of the corresponding psoas muscle and symptoms resembling an appendiceal abscess.

*Tumors* of the right kidney must by all means be mentioned. It would seem easy to differentiate a hard palpable mass in the abdomen from one in the retroperitoneal region, but in practice such is not at all easy. I have seen such cases erroneously diagnosed even after cystoscopy. The tumor may be so large that it displaces everything and makes such a dense shadow as to be impossible of good radiography. I recall one case wherein a large fibrous tumor developed in the retroperitoneal region and pushed the small normal kidney directly anteriorly, so that a pyelogram appeared in the correct location and the pelvis was normal in outline. The mass was palpable bimanually and felt exactly like an enormous kidney, yet was not. Cases have been reported where such tumors have pressed on the bile tract, causing jaundice, digestive disturbances, pain, and all the other gall-bladder symptoms, yet were truly kidney tumors. Remembering that only a thin peritoneum and extraperitoneal layer of fat separates

the kidney from the gall-bladder, it is easy to see that very much enlargement of either organ will press directly against the other, particularly if the enlargement is in the kidney. The over shadowing symptoms of weakness, digestive disturbances, anemia, and pain would be exactly the same in either disease. When the patient's condition is such that the left kidney fails to function properly, as in polycystic disease, absence of the left kidney, etc., symptoms of uremia may supervene, and the yellowish tint of skin in the toxic patient may greatly resemble jaundice even when there is no pressure on the bile tract.

*Renal Tuerculosis* is one of the things which must be kept in mind in any case of pain in the hypochondrium. In five or ten per cent of cases of this disease the onset will be either a sudden painless hematuria, or an enlargement of the kidney on one side without pain, or the slow development of a dull pain in the kidney region, which is referred both forward and backward. There may be no focus distinguishable in the lungs, there may be a completely negative history, and the only things noticeable at the beginning will be the above named signs or symptoms accompanied by loss of weight, digestive disturbances, and low grade fever. Inasmuch as the hope of recovery lies in an early diagnosis the importance of complete and thorough investigation of such a group of complaints goes without saying. It is not sufficient to give the patient a tonic and dismiss him with a diet for his alleged cholecystitis. The next thing he develops may be a sinus in the lumbar region, when his disease will be past the point of operative cure. When such conditions are diagnosed early it may be possible to treat them as closed cases of renal tuberculosis.

One last group of cases I wish to mention which I am sure are not commonly thought of in this connection, are those of embolic blockage of the renal vessels. Only recently I saw such a case, where the patient entered the hospital suffering from a low grade fever, weakness, some edema of the extremities, low blood pressure, hematuria, albuminuria and a systolic heart murmur. The second day of his hospitalization he complained of a pain in the right hypochondrium, associated with tenderness and rigidity of the muscles of the upper right quadrant. His general condition was evidently one of bacteriemia with endocarditis and nephritis and the prognosis was very poor. Owing to the fact that he already had demonstrable kidney

pathology and the new pain radiated downward along the direction of the ureter I was inclined to think that possibly he was suffering from a kidney stone or a beginning abscess. At autopsy the lesion was found to be an embolus blocking the right renal artery and the lower portion of the kidney was already gangrenous. How often such a condition may occur in the course of other illnesses is problematical, since the patients usually recover and the collateral circulation of the kidney brings about healing of the lesion produced by the embolus. Undoubtedly in many older persons the sudden development of pain in the gall-bladder region which later gets well and does not recur may be explained by some such happening. It is well for the diagnostician to bear such a possibility in mind when he has atypical gall-bladder like attacks to deal with. I am sure I saw a gall-bladder drained once when the true pathology was in the kidney, as shown by the fact that the attack of so called gall-bladder colic was accompanied by slight pain and swelling of the right testicle, and on operation the gall-bladder was anatomically perfectly normal. I have always felt that in this case there must have been some disturbance of the circulation of the right spermatic artery or vein.

Now, having muddled the subject all up, how are we to bring order out of chaos and set up guideposts to enable us to rule out kidney pathology in cases of suspected gall-bladder diseases? We cannot cystoscope all these patients nor can we even always do gall-bladder visualizations. And even if we can do these special tests, we as clinicians must first be able to form some sort of idea as to which test is needed or which specialist should be called in consultation. In order to evaluate the symptoms clearly let us take up those named in the beginning of the paper as characteristic of gall-bladder pathology:

1. *Pain in the right hypochondrium*, which may or may not be referred through to the back or up to the right shoulder. This pain is never referred downward in gall-bladder disease, and usually has a point of maximum intensity just under the costal margin at about the junction of the ninth rib. It is more marked after eating, and tends to be relieved by doubling up the thighs on the abdomen. Deep breathing increases it.

The pain of kidney disease is practically always referred downward along the course of the right ureter, into the thigh

or genitals, if it is referred anywhere. It may be referred upward if there is an abscess in the upper pole which has formed under the diaphragm. In such a case there should be much more fever than a gall-bladder infection gives rise to.

2. *Tenderness in the right hypochondrium*. This is usually more marked in gall-bladder disease than in kidney disease, and is definitely more intense anteriorly than posteriorly. It is elicited best on deep inspiration, and produces a grunt of distress from the patient if the gall-bladder is pressed upon. The tenderness of kidney disease, except in perirenal abscess is not so acute, but is more of a sickening sort of pain on bimanual pressure. It is lower and more posterior, with the point of maximum intensity in the lumbar area.

3. *Rigidity usually more constant in the upper anterior quadrant in gall-bladder disease*. In kidney disease it is always accompanied by rigidity of lumbar muscles on the same side. Some authors say (Blumensaadt and Nestmann) that there is usually an accompanying mild scoliosis of the lumbar segment of the vertebral column. In renal calculus the curvature will be convex to the affected side, while in inflammatory lesions and mobile kidney it is concave. In tumor it is variable. In perinephritic abscess there is usually some contraction of the psoas muscle on the corresponding side.

4. *Possible tumor in the right hypochondrium*. In gall-bladder disease this is always a floating tumor, palpable anteriorly and not bimanually. The upper pole can not be felt. Palpable kidney is always bimanually felt, and the upper pole can usually be made out. The kidney can often be flipped through the two hands, while the gall-bladder cannot be made to move so fast nor so far. It may be a floating tumor but usually is not. When it is there is usually one of the same kind on the opposite side. If the tumor is an enlarged kidney the loin on that side is usually dull on percussion; if it is gall-bladder the loin will be resonant. In case of doubt outline the tumor on the anterior abdominal wall, make a loop of small wire to cover the outline and fasten it in place with adhesive.

5. *Digestive disturbances*. These are usually more definite and pronounced in gall-bladder disease than in kidney disease, and are much more definitely related to pain. In other words, when the patient has much indigestion he also has much distress. This is not necessarily true in the reflex indigestion of kidney disease.

*6. Jaundice may or may not be present.* The presence of jaundice would be strong presumptive evidence of bile tract involvement, whether this in turn were due to pressure from a tumor outside it or not. Unless there was a large palpable tumor in the right hypochondrium, which could conceivably be either kidney or gall-bladder, the presence of jaundice with other symptoms would definitely turn the decision to gall-bladder disease. One must be careful to know definitely that it is jaundice and not the sallowness of uremia seen in advanced nephritis.

*7. Fever and leukocytosis in acute cases.* This is generally not high in gall-bladder disease, and is fairly high in kidney disease. Other than this general observation both may occur in kidney or bile tract disease.

*8. Hematuria is seen in jaundiced cases or following severe colics.* The associated jaundice would definitely point to gall-bladder disease, while hematuria with severe colic from kidney disease would likely be much greater in amount than that from gall-bladder colic.

With the above principles in mind we are at least prepared to make a tentative diagnosis of any case which may come before us. If after taking a careful history and eliciting the amount and degree of each of the above named signs and symptoms we lean toward a diagnosis of gall-bladder disease, we are then justified in doubtful cases in asking the further help of the radiologist. By means of the gall-bladder visualization test of Graham the functional ability of the gall-bladder can be added to our other information. If we are still not sure that there may not be kidney pathology present we should make urinary studies for pus or blood, being certain that urethral pathology is ruled out by the two glass test or by obtaining the urine through a catheter. This information together with a correctly made roentgen picture will in the majority of cases definitely settle whether the trouble is a tumor, perirenal abscess, stone or tuberculosis because it will outline the size and shape of the kidney on each side and will show whether there is a collection of pus outside the kidney or a stone. If then because of blood or pus in the urine we desire to further diagnose the intrarenal pathology, we can resort to cystoscopy and do ureteral catheterization and pyelography. There matters are outside the scope of this paper, which merely deals

with the question of determining whether or not the disease resides in the urinary or bile tract.

The thing which I as a urologist merely wish to emphasize is that the symptomatology of gall-bladder disease so closely simulates that of kidney disease that it is comparatively easy for abdominal surgeons to mistake the latter for the former unless they keep in mind the possibility of retroperitoneal disease which is much more common than is generally recognized.

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**THE MODIFICATION OF POWDERED MILKS**

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When physicians are confronted with dependable fresh milk supplies when feeding infants, especially in the summer time, it is well to consider the use of reliable powdered whole milk such as Mead's. Such milk is safe bacteriologically, of standard composition, is easily reliquefied, and is particularly desirable for the mother who takes her baby with her on her vacation. Under these conditions, Dextri-Maltose is the physician's carbohydrate of choice just as it is when fresh cow's milk is employed. The best method to follow is first to restore the powdered milk in the proportion of one ounce of milk to seven ounces of water, and then to proceed building up the formula as usual. Please send for our Literature No. 61 which gives practical working formulae for modifying powdered and dried milks, evaporated milk, lactic acid milk, protein milk and cow's milk. Mead Johnson & Company, Evansville, Indiana, U. S. A.

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**SEROUS SPINAL MENINGITIS  
(CIRCUMSCRIBED)**

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Of the noteworthy features in these two cases reported by George B. Hassin and Edmond Andrews, Chicago (Journal A. M. A., March 16, 1929), the age in case 1 deserves attention, for it is the lowest on record (14 years). The etiologic factor, rather definite in the second case, was here rather obscure. Excessive jumping, a fall or immoderate dancing of the charleston may have acted as a trauma, which is considered the common cause of serous meningitis. The authors conclude that many cases of so-called spastic paraplegia are due to a circumscribed accumulation of cerebrospinal fluid in the subarachnoid space. The principal causes of the fluid accumulation are either trauma or syphilis. In obscure cases of spastic paraplegia in which a primary cord lesion, such as myelitis, syringomyelia or multiple sclerosis, can be excluded, surgical treatment (laminectomy) is indicated. Surgical treatment should also be resorted to in those cases of spastic paraplegia which are known as Erb's type of cerebrospinal syphilis (syphilitic spastic spinal paralysis) combined, of course, with a vigorous anti-syphilitic treatment.



HENRY C. WEBER  
BARTLESVILLE  
President Oklahoma State Medical Association  
1931-1932

# THE JOURNAL

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Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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### EDITORIAL

#### THE OKLAHOMA CITY SESSION

As was to be expected the Thirty-Ninth Annual Session was remarkably successful, notwithstanding the fact that there were some slight slip ups here and there, though not enough to particularly affect the success of the meeting to any degree. These little errors though small, invariably occur regardless of how carefully meetings are planned in advance or how thoroughly the details may be worked out. The first and most regretable occurred when Dr. Dean Lewis was delayed in his arrival, due to a train wreck and missed

addressing the General Scientific Section, on the morning of May 12th. Dr. Lewis delivered an address that evening to the general meeting. The addresses of Doctors J. H. Musser, New Orleans; Vilray P. Blair, and Bransford Lewis, of St. Louis, were given attention by large attendances.

The House of Delegates, by a vote of 30 to 9 and after consideration and prolonged discussion, decided that hereafter Section Chairmen would be selected by the Committee on Scientific Work. The Committee on Scientific Work was furthermore instructed to hereafter make every attempt to secure a program giving every branch and specialty the representation on the Scientific program of the Annual Session to which they are entitled.

The Council, in its decision did not decide to go as far as the above action of the House but believed that the old plan should be continued for at least a year in order to attempt to cure any possible inequalities existing, however, the House was insistent that the change be made at once.

Both moving pictures and the University Extension Post-Graduate work received commendation wherever considered. These undertakings will be continued.

The dinner of the Reserve Officers had a fair attendance and was highly representative of the Corps in the State. The opinion was expressed that more younger men were needed in the Medical Reserve Corps.

Doctors W. J. Wallace and Rex Bolend entertained with a dinner in honor of Dr. Bransford Lewis and their friends.

Doctor Curt von Wedel had as his guests at a luncheon, Doctors Vilray P. Blair and Bransford Lewis.

More than 600 physicians attended the meeting. It is difficult to give the exact number as many did not register.

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#### SOME OPINIONS ON UNIVERSITY EXTENSION AND POST-GRADUATE MEDICAL INSTRUCTION

The following expressions of appreciation are quoted from letters received from members of the faculty of the medical team of this year:

"In answer to your question concerning future programs, I have no suggestions to make. A tour of your various cities by a group of clinicians apparently meets with popular response and, under the circumstances, I think it would be

difficult to improve upon this plan. I enjoyed the days spent in Oklahoma very much indeed and I wish you to present my compliments to the men whom I met on the trip."

(Signed) Charles A. Elliott

"I think the meetings have been a decided success. Meeting the expediency of bad economic conditions where the doctors have not been able to go away for post-graduate work, thereby availing them of post-graduate instruction."

(Signed) Lea A. Riely

"I enjoyed my visit to Oklahoma very much indeed and appreciate very greatly the many courtesies that were extended to me."

(Signed) P. P. Vinson

"I want to tell you that I had a most enjoyable and interesting trip to Oklahoma. It was a real pleasure to get to know the splendid practitioners you have in the State. I was sorry I did not have the opportunity of seeing something more of you. The only objection I had to the whole trip was that it was so hurried and I seemed to be in such a continual rush that I did not have time to do what I wanted and to be with the men whom I wished to see."

(Signed) J. H. Musser

"I was very much impressed with the prosperity of Oklahoma as contrasted with Missouri and Arkansas. You have a great State and I enjoyed seeing it although one has to confess that it was very strenuous work. The job of preparing and exhibiting the food was a big one, going as we did from town to town and meeting all sorts of conditions, but I think that we carried out our program everywhere as we had planned it."

(Signed) W. H. Olmsted

It is proposed this year that eight centers instead of four, the plan followed this Spring, will be given the benefit of the post-graduate work. It is believed that this plan will make available the post-graduate instructions to practically every physician over the State.

#### TRANSACTIONS OF THE THIRTY-NINTH ANNUAL SESSION OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY MAY 11, 12, 13, 1931

THE COUNCIL  
OKLAHOMA CITY, MAY 11, 1931,  
3:00 P. M.

Call to order by the President, Dr. E. S. Ferguson.

Present—Doctors: E. S. Ferguson, Oklahoma

City; H. C. Weber, President-Elect, Bartlesville; F. H. McGregor, Mangum; F. M. Adams, Vinita; L. S. Willour, McAlester; W. A. Howard, Chelsea; J. C. Ambrister, Chickasha; LeRoy Long, Oklahoma City; P. B. Champlin, Enid; C. A. Thompson, Muskogee.

Minutes of the Council meeting, Oklahoma City, March 8, 1931, read and approved.

The President announced the following committees:

Auditing Committee: Doctors Frank H. McGregor, Mangum; W. A. Howard, Chelsea.

Credentials Committee: Doctors A. B. Chase, Oklahoma City; Ellis Lamb, Clinton; J. C. Ambrister, Chickasha.

Dr. L. S. Willour, McAlester, read a detailed statement from Mr. L. W. Kibler of the University Extension Department, which contained suggestions as to future post-graduate medical instructions.

A motion was made by Dr. Willour as follows and was adopted:

"That two members of the Council be appointed with power to act on behalf of the Council to cooperate with the Extension Department and with the Committee on post-graduate medical instruction of the State University."

The following Committee was appointed: Doctors L. S. Willour, McAlester; F. H. McGregor, Mangum.

Dr. Willour made a motion and it carried that "Hereafter expenses of the Delegates and the Secretary-Treasurer-Editor to the Annual Session of the American Medical Association be paid."

Dr. W. M. Gallaher, Shawnee, read a report of a Committee which investigated the situation with reference to physicians engaged in certain practices at Wewoka.

Discussion by Dr. J. S. Fulton, Atoka, and others.

Dr. J. S. Fulton, made the following motion, which was adopted:

"Resolved, with reference to the present practices engaged in by the Nightingale Hospital Association, and its contract participated in by members of the County and State Associations, and especially with reference to the solicitation of membership from the laity to membership in said Nightingale Hospital Association; that said participation is not in keeping with medical ethics and should be discontinued as soon as possible; that it is also the opinion of the Council that if this proposition is referred to the Judicial Council of the American Medical Association, that such practices will unhesitatingly be condemned, both as to the Nightingale Hospital and the physicians connected in the plan, as unethical."

The Secretary, as a member of the Committee on Scientific Work, was instructed to lay before the House of Delegates certain complaints with reference to inequalities and practices connected with the make-up of the Scientific Sections. It was the opinion of the Council, after prolonged discussion, that the Committee on Scientific Work should seek to so plan the Scientific Sections that all specialties and branches of medicine have rep-

resentation on the Section programs and that the Committee on Scientific Work contact Section Chairmen in the make-up of their programs with that end in view.

With reference to a proposed history of Oklahoma, it was moved by Dr. F. M. Adams, Vinita, and seconded by Dr. LeRoy Long, Oklahoma City, that the proposition be not endorsed.

The Council adjourned until noon, May 12, 1931.

C. A. THOMPSON,  
Secretary-Treasurer-Editor.

THE COUNCIL  
OKLAHOMA CITY, MAY 12, 1931,  
12:00 M.

Present—Doctors H. C. Weber, Bartlesville; J. S. Fulton, Atoka; L. S. Willour, McAlester; J. C. Ambrister, Chickasha; F. H. McGregor, Mangum; E. S. Ferguson, Oklahoma City; W. A. Howard, Chelsea; O. E. Templin, Alva; C. A. Thompson, Muskogee.

The Auditing Committee reported that examination of the books of the Secretary-Treasurer-Editor had been made, that they were found correct and the report approved as submitted.

The Budget Committee recommended that the budget remain as of 1930, except that \$700.00 be added on account of the University Extension work (post-graduate work) and \$600.00 on account of moving pictures, if such sums were found necessary. The report was adopted.

The Council adjourned.

C. A. THOMPSON,  
Secretary-Treasurer-Editor.

HOUSE OF DELEGATES  
OKLAHOMA CITY, MAY 11, 1931,  
8:00 P. M.

Call to order by the President, Dr. E. S. Ferguson.

Report of the Credentials Committee made and accepted.

Roll Call.

Reading of the 1930 minutes, passed. The minutes as published in 1930 being approved.

The Secretary presented his annual report, which had previously been submitted to the Council and to individual members of the House.

Dr. O. E. Templin reported the death of Dr. J. A. Bowling, Alva, whose name did not appear on the printed list.

Chairman appointed a Committee on Resolutions. The Committee as follows: Doctors: L. S. Willour, McAlester; O. E. Templin, Alva; A. L. Blesh, Oklahoma City.

The following resolution was submitted by Dr. Horace Reed and approved by the Committee:

"WHEREAS, all reputable, qualified and regularly licensed physicians are eligible to membership in the American Medical Association through its component County and State Societies; and all qualified members of the American Medical Association in good standing are eligible to Fellowship in the American Medical Association, and

WHEREAS, a fairly large percentage of the members of the County and State Societies do not avail themselves of Fellowship in the American Medical Association, and the stated reasons therefor, while not being uniform, indicate that the parent organization is not attuned to the needs of this large group to make fellowship a sufficiently worthwhile matter, and

WHEREAS, while recognizing the greatness of the organization of the American Medical Association, conceived and nurtured as it has been by the Masters of the past, there is evidence that it is not sufficiently sensitive to the needs of the profession in these rapidly changing times, therefore be it

RESOLVED, that our duly elected delegates of the American Medical Association be requested to investigate the possibility of a need of some changes, or reorganization in our parent body, and if deemed advisable after due consideration, introduce and support such measures in the House of Delegates of the American Medical Association as is necessary to correct such deficiencies as now apparently exist. Be it further

RESOLVED that a copy of this resolution attested by the Secretary be furnished (1) each member of our State Delegates to the American Medical Association (2) a copy to the Secretary, and (3) a copy to the Speaker of the House of Delegates of the American Medical Association.

The resolution was discussed by Doctors A. L. Blesh, Horace Reed, McLain Rogers and C. K. Logan. The resolution was adopted.

The following resolution was submitted by Dr. Horace Reed and approved by the Committee:

WHEREAS, from time immemorial the members of the medical profession have claimed, and have generally been accorded, the right to employ whatever method or remedy in the treatment of the sick which they conscientiously believed to be beneficial to the patient, and,

WHEREAS, certain restrictions and prohibitions in the Oklahoma State laws limit the exercise of this time honored custom, and,

WHEREAS, all medical students are taught that alcohol and certain preparations containing alcohol, have a place in medicine for which there is no satisfactory substitute, and a large percentage of the members of the profession have by observation and experience proven to their satisfaction that alcoholic preparations constitute a valuable asset, and are indicated in certain cases in the treatment of the sick, and,

WHEREAS, in some instances this conviction is so strong in the mind of the physician that he is tempted to resort to subterfuge, which in effect is to break the law, and procure the preparation which he conscientiously believes to be for the welfare of his patient, and the quality of the remedy thus surreptitiously obtained is often of unknown quality, and,

WHEREAS, the members of the medical profession are patriotic and want to be law abiding, yet under existing conditions are forced in many instances to cause infringement of the law; thus materially adding to the constantly increasing disrespect for the law, and,

WHEREAS, it is the duty of the profession to boldly stand up for its rights wherein the infringement of those rights concern the welfare of its clientele and the people as a whole, and, furthermore, it is the duty of the profession and the State Medical Association, the representative body of the profession in the State, to inform the people of the facts herein set forth to the end that the injustice of the existing situation may be corrected by the people in the interest of public welfare, therefor be it,

RESOLVED by the House of Delegates of the Oklahoma State Medical Association that the Officers and Council be requested, and are hereby authorized to conduct such a campaign of publicity as in their judgment will best serve to correct the deplorable situation herein set forth.

Be it further resolved that a copy of these resolutions be furnished (1) the Chief Executive, (2) each member of the legislative bodies and (3) the public press.

The resolution was unanimously adopted.

Extension work and post-graduate medical instruction was discussed by Doctors: L. S. Willour, McAlester; S. D. Neely, Muskogee; H. Walker, Rosston; J. M. Byrum, Shawnee; J. F. Kuhn, Oklahoma City; P. B. Champlin, Enid.

It was the opinion of all the speakers that the work should continue and be extended in its scope.

Moving pictures were discussed by the following: Doctors W. J. Wallace, Oklahoma City; H. Walker, Rosston.

It is the concensus of opinion of these gentlemen that the moving pictures as now in use were a potent means of educational service.

The House adjourned.

C. A. THOMPSON,  
Secretary-Treasurer-Editor.

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## HOUSE OF DELEGATES OKLAHOMA CITY, MAY 12, 1931, 8:30 A. M.

Dr. E. S. Ferguson, President, presiding.

The roll call showed 53 members present.

Dr. J. F. Kuhn suggested that doctors addressing the meeting speak loud enough to be heard.

Dr. Ferguson called for the first order of business, the election of officers.

Dr. T. C. Sanders, Shawnee, nominated Dr. R. M. Anderson, Shawnee, for president. Dr. W. Albert Cook, Tulsa, moved that nominations cease and cast the ballot of the House of Delegates for Dr. Anderson. The motion was carried and the vote so cast.

Dr. Henry S. Browne, president of the Tulsa

County Medical Society invited the Association to hold its 1932 meeting in Tulsa. Dr. W. Albert Cook, Tulsa, announced that there were many invitations from the Tulsa Chamber of Commerce, the City of Tulsa, and other civic organizations to that effect. Tulsa was unanimously selected for the 1932 meeting place.

Dr. McLain Rogers, Clinton, was re-elected as Delegate to the American Medical Association for the years 1932-33.

The following Councilors were elected to represent the Districts indicated:

District 1.—Dr. O. E. Templin, Alva.

District 7.—Dr. W. M. Gallaher, Shawnee, re-elected.

District 8.—Dr. F. M. Adams, Vinita, reelected.

District 9.—Dr. L. S. Willour, McAlester, re-elected.

District 10.—Dr. J. S. Fulton, Atoka, re-elected.

Report of the Committee on Necrology was read by Dr. Ellis Lamb as follows.

"This is a sacred hour at which the Oklahoma State Medical Association pauses to pay tribute to our departed Brothers. The hand of time moves on and in vain do we call the names of our beloved brothers whom God has called to dwell forever in that eternity that feels no sorrow and knows no end.

While they were here they gave their friendship which we shall cherish as indestructible jewels and when they passed on to a greater realm we felt that priceless pearls had been dropped in the depth of an unfathomed ocean.

They freely donated their mental talents to the profession, which they loved and served so well, that its honor might be raised to a height where ignorance can not reach nor scandal tarnish. The history of good men and honored citizens was their history, the love of kind fathers forever burned in their hearts, they felt the accolade of faith services rendered to their State and the communities in which they resided; they knew the keen passions of ambition to have the Oklahoma State Medical Society excel in all its undertakings. Now as we call their names aloud we hear no response.

Be it resolved that the State has lost good citizens, that their wives and children shall mourn the absence of loving husbands and fathers, and that the Oklahoma State Medical Association has lost honored members.

Be it further resolved that these resolutions shall be spread upon our records, that they be printed in our State Medical Journal, and that copies be sent to the family of each deceased brother.

Respectfully submitted,

DR. ELLIS LAMB  
DR. J. S. FULTON  
DR. R. M. ANDERSON

The motion was adopted.

To the list of names as published in the May Journal those of Doctors J. A. Bowling, Alva, and J. W. Marshall, Shawnee, were added.

Dr. C. A. Thompson, Muskogee, verbally reported on behalf of the Committee on Scientific Work. (See transactions of the Council.)

Dr. Horace Reed, Oklahoma City, moved that hereafter the Committee on Scientific Work select the Chairman and Secretary of each Section. Dr. McLain Rogers, Clinton, seconded the motion.

Dr. J. S. Fulton, Atoka, suggested that the Sections continue selecting the Chairman and Secretary with the cooperation of the Committee on Scientific Work. Dr. J. M. Byrum, Shawnee, moved that the Committee on Scientific Work make a study of the matter and report its recommendations at the next annual Session.

Dr. J. F. Kuhn, Oklahoma City, suggested that the Committee on Scientific Work at least nominate the officers of the Sections or select nominees to be presented to the Sections. Dr. W. Albert Cook, Tulsa, approved Dr. Kuhn's suggestion.

A motion was then made that the Committee on Scientific Work make nominations for Chairmen and Secretaries of the Sections and present them to the Sections for their approval or disapproval.

The motion was seconded by Dr. J. F. Kuhn, Oklahoma City.

Dr. H. T. Ballantine, Muskogee, suggested that the matter be left to the County Societies and that action be deferred until next year.

Dr. J. F. Kuhn, Oklahoma City, moved that the House of Delegates abolish all Sections and take full control. That the time had come to assume full control and leave the Committee on Scientific Work power to select Chairman and Secretary.

Dr. J. S. Fulton, Atoka, moved to amend that motion, to empower the Committee on Scientific Work to submit the name of Chairmen and Secretaries to the Sections for approval.

Dr. J. M. Byrum, Shawnee, again suggested that the matter be studied and taken up at the next Annual Session.

Dr. L. J. Moorman, Oklahoma City, suggested that the Section officers submit proposed programs to the Committee on Scientific Work.

Dr. A. B. Chase, Oklahoma City, (a member of the Committee on Scientific Work) stated that the present Committee has never realized the powers given them in the Constitution. He suggested that the Committee be informed of its power and cooperate with the elected Chairman and Secretary.

Dr. C. A. Thompson, Muskogee, suggested that the House instruct the Committee and advise the Chairman and Secretary of the Scientific Sections that their programs consist of a definite number of papers covering certain subjects.

Dr. O. E. Templin, Alva, suggested that election of Section officers be the first order of business upon the meeting of the Sections and before the submission of any papers, in order that the officers be elected from the largest body possible.

Dr. E. S. Ferguson, Oklahoma City, requested that the Section officials be elected on the first day of the meeting, that the Chairman have honorary powers only and the programs be arranged by the Committee on Scientific Work.

Dr. C. M. Pounders, Oklahoma City, made a statement recounting the formation of the Okla-

homa Pediatric Society and stated that it was primarily to promote the interest of the profession in pediatrics.

Dr. J. C. Smith, Bartlesville, stated that if the programs were not of sufficient interest to bring obstetricians and gynecologists to the Scientific Sections that other organizations similar to the Oklahoma Pediatric Society would likely be formed.

Dr. C. S. Bobo, Norman, suggested that the discussion did not take into consideration the Constitutional powers of the Committee on Scientific Work and that the House of Delegates instruct the Committee to pursue its duties according to the Constitution and By-Laws; that there was nothing in the By-Laws empowering Sections to select their Chairman and Secretary, that the Committee on Scientific Work should pursue their duties and take over such functions.

Dr. C. A. Thompson, Muskogee, stated that the Chairman of Sections should either be selected outright or the next best step would be to specify that the program will, shall and must consist of a certain type of papers in order that it be evenly balanced.

All motions were finally withdrawn except the original motion of Dr. Horace Reed, Oklahoma City, which was as follows: "Motion that the Committee on Scientific Work select the officials of the Section."

The motion was seconded and upon vote was adopted 30 in favor to 9 opposed.

Dr. W. J. Wallace, Oklahoma City, then suggested that the Committee on Scientific Work select at least two members to discuss each paper.

Dr. J. M. Byrum, Shawnee, filed notice of an amendment to the Constitution and By-Laws, providing that the Committee on Scientific Work should be so enlarged as to represent Sections in General Medicine, General Surgery, Eye, Ear, Nose and Throat, Pediatrics, etc.

Dr. E. S. Ferguson then handed over the meeting to Dr. H. C. Weber, President for 1931-32.

A telegram of congratulations received from the Southern Medical Association.

The House of Delegates then adjourned.

C. A. THOMPSON,  
Secretary-Treasurer-Editor.

#### ANNUAL REPORT

of the  
SECRETARY-TREASURER-EDITOR  
May 1, 1930 to April 30, 1931

*To Members of the Oklahoma State Medical Association:*

In conformity with the Constitution and By-Laws, I hereby submit the report of my work for the past year.

Detailed statements of all activities, financial transactions and certificates of the Commercial National Bank, Muskogee, have been submitted to the Council for their audit.

*Membership:* On April 30, 1931, we had 1609 members; on this date we have 1602.

*Deaths in Our Membership:* Since our last meeting the following deaths have been reported:

Dr. C. W. Ballaine, Cleveland.  
 Dr. J. L. Barker, Oklahoma City.  
 Dr. C. R. Day, Oklahoma City.  
 Dr. A. D. Young, Oklahoma City.  
 Dr. C. L. Blanks, Tulsa.  
 Dr. J. E. Buchanan, Mounds.  
 Dr. Thos. B. Lane, El Reno.  
 Dr. J. H. McCulloch, Checotah.  
 Dr. J. A. Mullins, Marlow.  
 Dr. J. A. Patton, Stilwell.  
 Dr. E. E. Poynor, Stilwell.  
 Dr. J. C. Smith, Catoosa.  
 Dr. W. C. Threlkeld, Sweetwater.  
 Dr. W. T. Tilly, Muskogee.

*Medical Defense:* The following cases have been settled.

Oklahoma County, No. 65006.  
 Tulsa County, No. 58707.  
 Pontotoc County, No. ....

In addition to these, there are ten cases in which the status is as yet unknown or pending:

Bryan County, No. ....  
 Ottawa County, No. ....  
 Ottawa County, No. ....  
 Ottawa County, No. ....  
 Tulsa County, No. ....  
 Pottawatomie County, No. 13713.  
 Kiowa County, No. ....  
 Kiowa County, No. ....  
 Kiowa County, No. ....  
 Okmulgee County, No. ....

*Journal and Advertising:* We have had a very satisfactory business during the past year, as will be noted from the financial statement. During the year we received for advertising, subscriptions and exhibits, \$7,155.57; from County Secretaries \$6,752.00. Our advertising has held up remarkably well, considering the general business depression. It is hoped that this will continue, and we believe it will, if our members continue to support our advertisers as they have in the past.

*The Journal:* We have been particularly fortunate in the past year in securing an unusually large number of high class productions, and at the close of the fiscal year we have on hand a relatively large number of fine papers due for early publication.

*Educational Activities:* Our Association took a very forward step in the expenditure of a modest sum of money for the purchase of moving picture films. These films have been seen already by more than nine hundred physicians and have unques-

tionably done a great deal of good. It is the intention of the Council to continue these purchases whenever it is decided that suitable films are available.

*Cooperation With The Extension Department of the State University:* Some time ago the Extension Department proposed that we underwrite a visit to the State of four outstanding medical authorities who were to appear at McAlester, Lawton, Oklahoma City, Enid and Tulsa, to the extent of \$700.00, if necessary, their estimate being that we would be called upon to pay half of that amount. This work was put through and from reports proved to be very successful. More than seven hundred attending the one day clinics in the cities named. The Council believes that the work should be continued and that the cost is relatively small, and a great deal of help and information is extended to the physician, who otherwise, would be put to great cost and loss of time in securing such facilities. The cost of this service to your association was \$350.00.

#### O FINANCIAL STATEMENT

The Oklahoma State Medical Association  
 Dr. C. A. Thompson, Secretary-Treasurer-Editor  
 May 1, 1931.

#### Receipts

May 1, 1930, Balance Cash on hand in bank,	\$ 5,093.79
Advertising, Subscriptions & Exhibits	7,155.57
County Secretaries	6,752.00
Interest on Liberty Bonds	425.00

Total Receipts ..... \$19,426.36

#### Expenditures

Printing Journal & Misc., Printing	\$ 5,935.88
Office Supplies & Postage	341.80
Telephone, Telegraph & Press Service	95.94
Office Rent	429.58
Movie Films	480.00
Expense Shawnee Meeting	551.00
Council and Delegates Expense	649.73
Extra Clerical Work	102.20
Treasurers Bond & Audit of books	150.00
Mrs. Oltha Shelton, Salary	1,200.00
Dr. C. A. Thompson, Balance Salary April, 1930	200.00
Dr. C. A. Thompson, Salary to March 31, 1931	2,200.00

Total Expenditures ..... \$12,336.13

April 30, 1931, Balance Cash on hand in bank	7,090.23
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\$19,426.36

May 1, 1931, Balance Cash on hand in The Commercial National Bank	7,090.23
U. S. 4th 4½ Liberty Bonds in Safe deposit box in Commercial National Bank	7,000.00

Total Cash Assets ..... \$14,090.23

## THE MEDICAL DEFENSE FUND

The Oklahoma State Medical Association  
Dr. C. A. Thompson, Secretary & Treasurer  
May 1, 1931.

## Receipts

May 1, 1930, Balance Cash on hand in bank	\$ 292.73
Total Receipts	\$ 292.73
<b>Expenditures</b>	
July 7, 1930, Attorney fee, Hightower vs. McNew, Pontotoc County	\$ 100.00
October 11, 1930, Attorney fee, Kilburn vs. Trice, Oklahoma County	50.00
April 21, 1931, Attorney fee, Zeisper vs. Henderson, Tulsa, County	50.00
Total Expenditures	\$ 200.00
May 1, 1931, Balance Cash on hand in bank	92.73
Total	\$ 292.73
May 1, 1931, Balance Cash on hand in The Commercial National Bank	\$ 92.73
U. S. 4th 4½ Liberty Bonds in Safe deposit box in Commercial National Bank	3,000.00
Total Cash Assets	\$ 3,092.73
May 1, 1931, Total Cash Assets: Oklahoma State Medical Assn. \$14,090.23 Medical Defense Fund 3,092.73	
May 1, 1931, Grand Total Cash Assets	\$17,182.96
May 1, 1930, Grand Total Cash Assets	15,386.52
Total Net Gain Cash Assets for year	\$ 1,796.44

Respectfully submitted,  
C. A. THOMPSON,  
Secretary-Treasurer-Editor.

(Signed) H. A. LEWIS,  
Auditor.

## COMMERCIAL NATIONAL BANK

Muskogee, Okla., May 1, 1931.

Dr. C. A. Thompson, Secretary & Treas.,  
Oklahoma State Medical Association,  
City.

Dear Sir:

This is to certify that according to our records the following accounts had a credit balance, subject to check, at the close of business April 30th:

Oklahoma State Medical Assn. \$ 7,090.23

Medical Defense Fund 92.73

Yours very truly,  
A. H. DAVIDSON,  
Cashier.

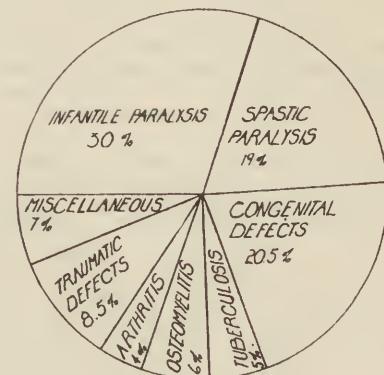
## CRIPPLED CHILDREN ANNUAL COMMITTEE REPORT—1930-1931

Submitted by DR. W. K. WEST, Member

The report of the work that has been done in the past year in connection with crippled children can best be presented by abstracting the

findings as reported by the Secretary of the Oklahoma Society for Crippled Children. Considering the cause of orthopedic defects in children, the following general headings cover practically all the cases:

1. Infantile paralysis .....	1147
2. Spastic paralysis .....	724
3. Congenital defects of which club feet and harelip or cleft palate, or both, constitute a great majority	791
4. Bone tuberculosis .....	198
5. Osteomyelitis .....	235
6. Arthritis .....	149
7. Traumatic defects .....	328
8. Miscellaneous which includes deformities of rickets, rare bone and muscle abnormalities, and bone tumors .....	225
Total .....	3797



From this series of diagnoses which were made by orthopedists either in the hospital or in the community in which crippled children's clinics were held, we show a very definite classification of the diseases and injuries that cause children to be crippled.

It has been our experience that we are able to help a majority of the orthopedic cases that have been admitted. Some of the cases are very favorable for correction, providing that the diagnosis has been made early. Notably among those conditions as listed are: infantile paralysis; practically all the congenital defects where treatment can be instituted within the first few months of life; bone and joint tuberculosis can be arrested and deformities prevented, but it is unusual to effect a complete cure. Traumatic defects from three chief causes are:

- a. Gunshot wounds
- b. Burned contractions
- c. Fracture deformities

As a rule, these old traumatic cases are not as favorable as they would have been had they been admitted at the time of the original injury, but, at the same time, marked improvements can be made. That is, in cases that have marked bowing deformities of extremities following fracture, a simple osteotomy will correct the malalignment, but some degree of shortening will persist.

Spastic paralysis cases are not always favorable, especially in those cases where there is evidence of mental impairment, or where the spasticity is marked in all extremities and the co-ordination is extremely poor. However, we feel

that any improvement is worthwhile as it has been our experience to find that a slight betterment may mean that the child will be able to walk with less difficulty, may be able to feed himself better, may be able to walk about the house without the aid of some member of the family which later will be of great value if the child happens to be one of many children and comes from a poor family. We use great care in selecting cases that have spastic involvement of all extremities because, as a rule, the mental power is not sufficient to carry on the work that has been started.

A report of the admissions to the State Crippled Children's Hospital shows that for the period of June 1, 1930, to January 1, 1931, there was a total of 962 new cases and a total of 238 return cases, making a grand total of 1200. This shows that the hospital is caring for a large number of defective children. These cases were not all orthopedic cases. They were surgical, including plastic, eye, ear, nose, and throat, and pediatric, as well as a large number that were classed as miscellaneous. In spite of the figures that show that a great deal has been done in the last year in the Crippled Children's Hospital there were on the waiting list at the last reading April 14, 1931, 294.

It would seem that we would soon see a falling-off of the admissions because of the termination of hospital treatment in so many cases. But, we note that there are hundreds of children in the State who need correction whose parents have objected to treatment because of fear. However, as time goes on and children in their respective communities return home with improvements that have been effected by hospital and surgical care, the same parents who have declined to admit their children agree to have them committed.

Oklahoma is one of the leading states in the work relative to diagnosis of treatment of defective children. And, the report as made by the Oklahoma Society for Crippled Children being very accurate, shows the work that has been done and also forecasts that there will be a great deal more to be accomplished in the future.

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### DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. BonDurant, M.D.  
413 Medical Arts Building, Oklahoma City

**Indications and Contraindications for Treatment of Latent Syphilis.** O. Naegeli, Schweiz, med. Wchnschr. 59:697 (July 6), 1929.

Is antisiphilitic treatment advisable in the cases of latent syphilis? Many authorities are of the opinion that it is not advisable. After discussing the various factors that are cited by these authors as indications against antisiphilitic treatment, Naegeli comes to the following conclusions: Therapy is advisable, in patients who have never been treated or in whom the treatment has been discontinued for a long period of time. If such patients do not receive proper treatment, skin eruptions may occur and the disease may involve internal organs that so far have not been affected. In pregnant women with syphilis, antisiphilitic treatment should be instituted in order to protect the fetus. Anti syphilitic treatment should be given to infants, children, and adults with congenital latent syphilis. Contraindications to antisiphilitic therapy are: seri-

ous intercurrent diseases and idiosyncrasy to antisiphilitic medicaments. In patients who are over 70 years of age, a positive serologic reaction should not be considered an indication for antisiphilitic therapy, nor should antisiphilitic treatment be resorted to in patients who have undergone intensive treatment several times and in whom a positive serologic reaction is the only indication of a syphilitic infection.

**Early Stages of Oral Cancer.** G. T. Mowat, Glasgow M. J. 31:121 (Sept.), 1929.

In a series of 244 cases of oral cancer analyzed by Mowat, the large majority showed a long period of chronic irritation of the part affected, which could have been avoided and the onset of the epithelioma probably averted by removal of the irritant at an early stage.

**Roentgen Therapy of Plantar Warts.** M. Miranda Gallino, Semana med. 36:689 (Sept. 5), 1929.

Miranda Gallino gives us the following report: Ten patients aged from 22 to 54, with plantar warts, treated with roentgen rays, made a complete recovery. The author says that his series is too small to justify the conclusion that all cases of planter warts should be cured by this treatment, but his good results support the optimistic opinions concerning this treatment. All patients but one received one or two treatments; in one patient three treatments were necessary. Roentgen irradiation, when judiciously used, is harmless and it should be the treatment of choice in plantar warts.

**Effect of Fresh Syphilitic Infection on Classic Attacks in Tertian Malaria.** G. J. Perekropow, Arch. F. Schiffs-u. Tropen-Hyg. 33:432 (Aug.) 1929.

The case of a girl, 19 years of age, was reported by Perekropow in which the disappearance of typical attacks of tertian malaria, were preceded by the appearance of a severe secondary syphilis. The patient was not undergoing treatment for malaria at the time the attacks disappeared, in spite of the fact that examinations of the patient's blood three weeks before the syphilis appeared had revealed great numbers of tertian parasites, repeated examination of the blood after the syphilis appeared did not reveal the presence of a single malarial parasite. On the basis of this and two similar cases the author believes that the good results obtained in the malaria treatment of paresis are to be attributed not to the action of the malarial parasites but to the combined treatment with arsphenamine and quinine.

**Simultaneous Occurrence Of Congenital and Acquired Syphilis In Infants.** E. Hoffman, Deutsche med. Wchnschr. 55:1289 (Aug. 2), 1929.

An infant who at birth appears healthy but who shortly before birth has been infected by way of the placenta may acquire a superinfection in the form of a cutaneous chancre. Clinical as well as experimental observation, according to Hoffman, prove that in infants congenital and acquired syphilis may occur simultaneously. The chancre is accompanied by enlargement of the regional lymph nodes and often simulates the primary lesion in acquired syphilis. Whether the spirochetes that enter the organism during the placental infection, or whether the spirochetes

that cause the cutaneous infection, will dominate depends on the number of spirochetes that caused the superinfection. The author asserts that the mixed forms of syphilis are comparatively rare. The differential diagnosis in such cases is usually difficult. Nevertheless it is not only of theoretical interest but also of practical value, and it requires the cooperation of gynecologists, dermatologists and pediatricians.

## UROLOGY and SYPHILOLOGY

Edited by Rex Boland, B.S., M.D.  
1010 Medical Arts Building, Oklahoma City

### CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

A cystoscope is no better than the eye at its ocular end.

If your regular fee for a cystoscopy is ten dollars, that's all it is worth.

Cystoscopes never wear out but they soon become decrepit through abuse.

The wise cystoscopist lends his money, his coat, his car, even his books, but never his cystoscope.

God bless the man who invented ureteral stricture. It is such a sweet morsel to roll on the tongue when you can't find any other pathology.

There ought to be a law requiring urologists to subject themselves at least once to a cystoscopy. Thereafter patients would not complain so much about the procedure.

The injection of the local anesthetic is the easiest part of a cystoscopy, yet, according to patients, it must be the part most frequently unskillfully done—for how some of them do howl.

If you depend upon the nurse for the potency of your catheters and the proper working of the light, then you may expect to be subjected to embarrassing experiences in the cystoscopic room. Better test these things yourself.

Don't be afraid to repeat a cystoscopy if there is the least doubt in your mind as to the diagnosis, and don't attempt to do too much at one sitting. Also be firm with the man who runs into your office during office hours and wants you to cystoscope his patient, give him a diagnosis and let him get out before "the cop tags his car downstairs." This is the same baby who before long will be saying that you don't know your stuff.

**Experimental Study as to the Origin of Hydronephrosis.** Yagishita discusses (*Japanese Journal of Dermatology and Urology*, July, 1930).

Experiments upon rabbits to determine the relative importance of complete and of partial obstruction of the ureter in the etiology of hydronephrosis.

Experiments were performed upon 102 rabbits, and these were divided into two series.

In the first series the ureter was ligated in two places with silk, so that the obstruction was absolute.

In the second series a kink in the ureter was established by suturing it with muscles in the neighborhood. Care was taken not to completely obstruct the ureter in this series. They found that in the first series the kidney pelvis became gradually dilated, resulting finally in a typical increasing hydronephrosis.

In the second series, however no such enlargement occurred with any regularity.

**Hematuria.** Swan, in the *New England Journal of Medicine*, for May 8, 1930.

1. Lesions primarily in the upper urinary tract contribute more than fifty per cent of all cases of hematuria.
2. The majority of renal hematurias are microscopic.
3. At least thirty per cent of massive hematurias are caused by tumors of the bladder. Blood in the urine in any amount, even microscopic is pathological, and its source should be investigated at once. The term essential hematuria should be dropped as it merely expresses our diagnostic ignorance. Lesions of the kidney giving rise to hematuria are in the order of prevalence as follows: Tuberculosis, stone, pyelitis, malignant disease, nephritis. Eisendrath lists among the causes of hematuria.
- (a.) Systemic causes, haemophilia, erythremia, purpura, etc.
- (b.) Lesions of contiguous structures, such as the appendix and internal female genitalia.
- (c.) Lesions of the genito-urinary tract proper.

Two-thirds of all hematurias will fall under group c. In obscure cases, of course, the diagnosis may be different, but every effort should be made to establish it, and where this is not at first successful the patient should be kept under observation and never be dismissed with a diagnosis of essential hematuria.

### Extracts from the Weekly Meeting of Urological Stall-University Hospital.

Dr. Taylor reported from two articles dealing with Pyelitis of Pregnancy in a recent number of *American Journal of Urology*. The authors brought out the following principles:

1. That pyelitis of pregnancy is virtually always induced by pre-existing pathology along the urinary tract.

2. Such pathology along other foci of infection, such as teeth, tonsils, sinuses, etc., should be sought for and corrected early in pregnancy as a preventative measure against the latter developments of pyelitis.

3. That palliative treatment by means of urinary antiseptics, is of slight or no value.

4. The cardinal principle in treatment of pyelitis is proper drainage which should be obtained by means of indwelling ureteral catheters, left in from three to five days and kept open by frequent lavage of normal saline solution.

After considerable discussion it was quite generally agreed that, kidney lavage through catheters was a harmless procedure to the patient, and in the majority of cases where there is not proper drainage it was very effective in results. The chief objection to kidney lavage in pregnant women being the distress and possibility of abortion. On the service at the University Hospital, there has never been any signs of abortion or marked distress.

**Tumor of Testis, By MacKenzie and Ratner, (in Surgery, Gynecology and Obstetrics as abstracted by Dr. Pat Lawson).**

Neoplastic diseases of the testes is a rare disease but due to the high morality it is given a great deal of consideration. The discussion being focused chiefly on origin, nature and pathology. New growths of any organs or tissue of the body often present so varied a pathological picture that a clear classification is made impossible. This is even more striking in tumors of the testes, for here we are dealing with an organ which has not only an internal secretion but also a function to produce germ cells. Many of these cells are aberrant in type and have a tendency to form growths which resemble rudimentary fetuses, so called teratomata.

**Pathology;** a teratoma may be defined as a mixed tumor containing derivations of the three germinal layers: (1.) epiblast, (2.) mesoblast and (3.) hypoblast, or may be described as a totipotent cell which has the power to give rise to every order of cell in the body. The chief source of the growth being the aberrant sex cell. The teratoma being divided into three different groups according to tissue derived from, whether tissue is adult or embryonal.

1. Embryonal Carcinomata (in which one type of tissue predominates). The greater number of tumors of the testes belong to this class. These tumors are very malignant, metastasize early, and local recurrence after operation is usual. Under this type we also have papilliferous adenocarcinoma and adenocarcinoma.

2. Teratoid or mixed tumors: This group is made up of embryonal structures derived from all three germ layers. The type occurs quite often in tumors of the testes, containing embryonal structures of cartilage, bone connective tissue and muscle.

3. Chorio-epithelioma being derived from epithelium of the testicular growths.

Miscellaneous group of tumors, dermoids, fibroma, chondroma, myoma, adenoma, and lymphosarcoma, and those derived from testicular tubules.

**Metastases;** malignant tumors of testes metastasize by way of lymphatics and blood stream. The greater majority of them are very malignant and metastasize early. Metastases usually appear first in lumbar glands or in the glands along the spermatic cord and retroperitoneal glands causing mass in the abdomen as first signs of metastases. The most common organ being involved are the lungs, liver, brain, kidney, spleen and heart.

**Etiology;** one out of 2000 male admissions to hospitals have tumor of testes. Causes of tumor are not definitely known. Heredity plays no part. Trauma is considered a cause, as one-half of patients give history of injury. Undescended testes have never been known to cause malignancy.

**Diagnosis:** tumors of the testes have to be differentiated from tuberculosis, syphilis, hydrocele and haematocoele.

## DERMATOLOGY AND SYPHILOLOGY

Edited by James Stevenson, M.D.  
615 Medical Arts Building, Tulsa

An appraisal of the newest arsphenamine synthetic bismarsen, in The Treatment For Syphilis, Stokes, J. H., Miller, T. H., and Beerman, H. Arch. Dermat. and Syph. 23:624 (April) 1931.

Bismarsen or bismuth arsphenamine sulphonate is an arsphenamine synthetic devised by Raziiss, having an arsenical content of 12-15 per cent and a bismuth content of 23-25 per cent. The authors summarize the results of a series of 7,666 injections of the drug given from 1925-1930, and the results of other authors who have reported results following the use of this drug. Their conclusions, in part, are:

1. Bismarsen is a highly rational, relatively non-toxic and easily administered drug for the treatment of syphilis.

2. Local reaction to intramuscular injection (the only route) occurring as stiffness and pain, is minimized by prolonged massage and hot applications.

3. Systemic reaction occurred in 11 per cent of patients and include nitritoid crises, mild gastrointestinal reactions and cutaneous reactions. The incidence of primary exfoliative dermatitis is about the same as that noted in the use of neo-arsphenamine and less than that of the other arsenicals.

4. Spirilical and healing action, is slower than that of other arsphenamines.

5. The effect on the Wassermann reaction in early syphilis is excellent and lasting. In only two of thirteen patients re-examined within two to four years, were abnormal spinal fluids found

6. The results obtained in prenatal syphilis, in paresis, in cutaneous, mucosal and osseous gumma, and in interstitial keratitis are not as good as can be obtained by the use of other arsphenamines. The drug appears to be of most value in the treatment of early syphilis.

7. It is recommended that the drug be given continuously, without rest intervals, twice a week, for as near forty injections as possible.

### Self-Sterilization Powers Of The Skin. Cornbleet, T. and Montgomery, B. E. Arch. Dermat. and Syph. 23:908 (May) 1931.

The skin has remarkable powers for freeing itself of the constant and ubiquitous organic contaminations by which it is beset. It is unknown just how it accomplishes this task. The authors give the results of experiments made on normal and pathologic skin on which yeast and staphylococcus aurens emulsions were spread. At intervals these areas were swabbed and the material plated and incubated for 24 hours and the colonies counted. Some of the conclusions reached follow:

1. Yeast cells are removed from the surface of the skin at an almost uniform rate that varies little from one area to another as long as the epithelium is normally dry and intact. The area about the nails, however are less efficient in sterilizing themselves than are other normal areas and moist areas suffer a depression of their sterilizing.

2. Areas with denuded epithelium are not as efficient in removing yeast and staphylococci as intact ones.

3. Keratotic areas are no more efficient sterilizers than are normal areas.

4. Psoriatic lesions suffer from a loss of sterilizing powers as compared with uninvolved areas on the same persons, but if the scales are removed from the lesions, there is a marked increase in sterilizing power.

5. Staphylococci remain on the skin of persons with furunculosis longer than on that of others, while yeasts are removed just as quickly.

6. Intramuscular injections of manganese butyrate immediately depress the skin's rate of destruction of staphylococci, but one week following the injection the sterilization rate is greater than normal.

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D.  
304 Osler Bldg., Oklahoma City

**Cerebral Air Embolism Complicating Artificial Pneumothorax.** C. H. Andrews, M.D., The American Review of Tuberculosis, April, 1931.

The author discusses very vividly the occurrence of cerebral embolism in the course of artificial pneumothorax treatment. He cites a case report of a patient who had received artificial pneumothorax for about two years for a moderately advanced pulmonary tuberculosis. One day in the course of a treatment a little air was allowed to flow in what was thought to be the pleural space whereupon the patient immediately commenced to bring his arm down over the site of puncture. The air was shut off at once and the needle whipped out. Only 25 c.c. of air entered the chest. The patient held himself rigid, had a staring expression, with eyes fixed, temporary paralysis of left side of body. Skin was cold and clammy with moderate pallor. Had severe right sided headache and became unconscious with tonic and clonic convulsions of various parts of the body in the course of two hours.

After considerable stimulation and elevation of the foot of the bed the convulsions became less marked; pulse which had previously been thready and weak became stronger and he was again mentally alert.

**Insomnia In Tuberculosis.** W. C. Service, M.D. The American Review of Tuberculosis, April, 1931.

The writer states that insomnia and its complicating phenomena is one of the most exacting and trying problems that confronts the physician caring for tuberculosis cases.

The exciting causes are fear, worry, pain, vaso-motor disturbances and toxemia. Sometimes the restlessness and insomnia may become so marked in some individuals as to interfere with recovery from the disease.

Each case demands careful individual treatment, in which psycho-therapy, progressive relaxation, hypnotics and other aids all have their special function to perform.

**Serum-Calcium in Pulmonary Tuberculosis.** Jacob Kaminsky and Doris L. Davidson, American Review of Tuberculosis, April, 1931.

The authors cite from study of several hundred tuberculous cases instances in which minimal cases and quiescent cases showed little variation in the serum-calcium concentrations from those of normal subjects. On the other hand there was a considerable fall in the serum-calcium level in the far advanced cases. Active cases showed lower calcium values than quiescent cases and in cases with positive sputum there was a high incidence of lower calcium values than in cases with negative sputum.

Cases with a history of hemoptysis and those without a history of hemoptysis showed about the same relative frequency of higher and lower serum-calcium values.

There was little difference in the serum-calcium values between the sexes.

The average serum-calcium concentration in the group of patients receiving cod liver oil was higher than in the untreated group.

**The Leucocytic Reaction In Tuberculosis Patients Receiving Artificial Pneumothorax.** E. M. Medlar and G. S. Pesquera, The American Review of Tuberculosis, April, 1931.

The value of artificial pneumothorax as a therapeutic agent in the treatment of selected cases of pulmonary tuberculosis is now commonly accepted. The most common cause of failure of this mode of therapy is the presence of adhesions which prevent complete collapse of the diseased lung. Another common cause of failure in pneumothorax is that the treatment is not begun until there has occurred a considerable involvement of the lung substance. The greater involvement of the lung tissue the greater will be the difficulty in obtaining good compression and the longer will it take for the tuberculosis area to be changed to a retrogressive and healing stage. case. The interpretation of the leucocyte count should be used along with other data when an attempt is made to gain a comprehensive understanding of the actual status of a tuberculous case. The interpretation of the leucocyte count must rest in the hands of the physician in charge of the case. The leucocytic reaction is a valuable clinical adjunct.

The authors cite reports of European investigators in this field who state prosecution of hemogram forms or curves, which are naturally non-specific for tuberculosis but absolutely pathognomonic, makes possible an accurate insight into the individual phases of the physical combat against infection and permits us to establish the prognosis better than any other method of investigation. According to the authors, if within six months after collapse therapy has been instituted, the leucocytic picture does not show a trend toward improvement the collapse can be judged ineffective. Additional methods, such as pneumolysis, phrenicectomy and lastly, thoracoplasty, should be seriously considered.

**Oleothorax.** M. Gilbert, Tubercle, June, 1930.

Massive intrapleural injections of gomenol oil can be used for its disinfecting action in purulent pleurisy and chronic bacillary serous effusions; for its indirect detoxicating action by rendering the pleural layers thick and impermeable and inhibiting absorption of bacillary toxins; and for its mechanical action in promoting and maintaining a sufficient collapse of the lung in artificial

pneumothorax. In pleuro-pulmonary perforation the gomenal relieves the immediate distress and may help to combat complications following perforation.

It should not be used as a substitute for artificial pneumothorax for the maintaining of an oleothorax is more difficult than that of pneumothorax.

## BOOK REVIEWS

**Selections from The Papers and Speeches of John Chalmers DaCosta, M.D., LL.D., Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Phila., Pa. 440 pages. Philadelphia and London. W. B. Saunders Company, 1931. Cloth, \$6.50.**

This is a remarkable series of papers by one of the best known men in the medical profession. No physician or surgeon can read this book without being bettered and it will be found a delight to peruse its pages. The contents are as follows:

Medical Paris During The Reign of Louis Philippe; The Trials and Triumphs of the Surgeon; Address on the Occasion of the Graduation Exercises at the Naval Medical School in Washington on March 30, 1907; Dickens' Doctors; Baron Larrey: A Sketch; The Old Blockley Hospital: Its Characters and Characteristics; Then and Now; The Old Jefferson Hospital; Character Sketch of Professor Samuel W. Gross, M.D., LL.D.; The Surgeon, The Patient, and the Clinical Diagnosis; Behind the Office Doors; Surgical Oration Before the Ohio State Medical Association; Crawford W. Long; The Samuel D. Gross Address for 1914-15; William Williams Keen: A Sketch; The Foundation and the Founder of Jefferson Medical College; The Last Surgical Clinic in the Old Amphitheatre of the Jefferson Medical College Hospital, Held Before the Junior and Senior Classes, May 10, 1922, By Professor John Chalmers DaCosta; Facts Concerning The Old Operating Table; Certain Tendencies in Medicine; Address at the Opening of the Nurses' College of the Allentown Hospital; December 23, 1915; The Personal Side of Pepys; Suicide.

**Crippled Children, Their Treatment and Orthopedic Nursing.** By Earl D. McBride, B.S.,

M.D., F.A.C.S. Instructor in Orthopedic Surgery, University of Oklahoma, School of Medicine; Attending Orthopedic Surgeon to St. Anthony Hospital; Associate Orthopedic Surgeon to Oklahoma City General and Wesley Hospitals; Visiting Surgeon to W. J. Bryan School For Crippled Children; Chief of Staff to Reconstruction Hospital, Oklahoma City, Oklahoma. One Hundred Fifty-Nine Illustrations. Cloth. Price \$3.50. The C. V. Mosby Company, St. Louis, 1931.

Orthopedic surgery has made great strides in the last few years, especially since the World War, though a great deal of attention was being paid to the orthopedic disability of crippled children long before that. Dr. McBride, in this work, proposes to supply those interested in the care and treatment of crippled children with such knowledge and information as he deems most advantageous to them. In his preface he holds that orthopedic text books are too technical to answer this purpose and that verbal instruction is liable to misunderstanding. Naturally a considerable portion of the volume is given over to the various appliances used for the correction of abnormalities and to physical therapy.

**General Surgery.** Edited by Evarts A. Graham, A.B., M.D. Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief of the Barnes Hospital and of the Children's Hospital, St. Louis. Series 1930. Cloth. Illustrated. 848 pages, Price \$3.00. The Year Book Publishers, 304 South Dearborn Street, Chicago.

This review of the year's program in surgery covers myriad subjects and the authorities cited cover the civilized world. It will be read with interest and found of great worth to the surgeon as well as the physician.

**The Surgical Clinics of North America.** (Issued serially, one number every other month.) Volume 11, No. 1. (Chicago Number—February 1931.) 225 pages with 72 illustrations. Per clinic year (February, 1931, to December, 1931.) Paper, \$12.00; Cloth, \$16.00. Philadelphia and London. W. B. Saunders Company, 1931.

This issue maintains in every way the usual high class of the Surgical Clinics.

## OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS

Examination held at State Capitol, Oklahoma City, March 10th and 11th, 1931.  
The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Bergegrun, Katherine	1895	Chicago, Ill.	Temple Univ. Phil.	1927	Stillwater, Okla.
Best, Alonzo Lee	1875	Data, Ark.	Memphis Hosp.	1901	Newport, Ark.
Bonham, Wm. Lawrence	1900	Kansas City, Mo.	Univ. Mich.	1926	Oklahoma City, Okla.
Crawford, Wm. Shell	1891	Winnsboro, S. C.	Univ. S. C.	1914	Tulsa, Okla.
Crowell, Marvin Franklin	1896	Scotland, Ark.	Univ. Ark.	1928	Erick, Okla.
Dowler, Vernon Booth	1895	Canada	Univ. Toronto	1919	Tulsa, Okla.
Epley, Clarence Oscar	1882	Shell Rock, Iowa	Univ. Ill.	1910	Oklahoma City, Okla.
Hemphill, Paul Hurley	1899	Minn, Minn.	Univ. Wis.	1928	Pawhuska, Okla.
Kilfoy, Edward Joseph	1896	Fairfield, Iowa	St. Louis Univ.	1922	Oklahoma City, Okla.
Nelson, Franklin Jesse	1896	New Salem, Kan.	Rush Med Col.	1930	Sand Springs, Ok.
Nicholson, Ben Hamilton	1904	Harriman, Tenn.	Vanderbilt	1928	Oklahoma City, Okla.
Porter, Horace Harold	1902	Lexington, Neb.	Univ. Neb.	1929	Tulsa, Okla.
Rucks, William Ward, Jr.	1903	Guthrie, Okla.	Vanderbilt	1928	Oklahoma City, Okla.
Walker, M. G.	1863	Tenn.	Tenn Med. Col.	1901	Coleman, Tex.
White, Phil Elmer	1900	Enid, Okla.	Univ. Tenn.	1929	Oklahoma City, Okla.
Williams, Temple Weatherly	1900	Kemp, Tex.	Baylor Univ.	1929	Seminole, Okla.
Mitchell, Haig Hosepian	1900	Providence, R. I.	Wash. Univ.	1929	Milwaukee, Wis.
Russell, Glenn Alexander	1891	Rockford, Ohio	Univ. Louisville	1930	Oklahoma City, Okla.

## CEREBROSPINAL STIMULATION

Arthur S. Loevenhart, William F. Lorenz and Ralph M. Waters, Madison, Wis. (Journal A. M. A., March 16, 1929), assert that sodium cyanide administered intravenously in proper dosage causes cerebral stimulation in the stuporous phase of certain psychoses. A mixture of carbon dioxide and oxygen inhaled in the manner described is a far better agent for producing such cerebral stimulation. By these simple chemical procedures, the mental processes in certain psychotic patients are restored toward normal for a period of from 2 to 25 minutes. Such chemical procedures profoundly alter cellular function, possibly indicating something very material concerning the nature of the abnormality resident in certain psychotic states. The method of approach in certain stuporous or inaccessible psychotic patients here presented permits a period of contact with the individual which offers opportunities for further physiologic and psychologic investigations.

## WEIGHT REDUCTION AND CIRCULATORY EFFICIENCY

A few months ago a writer, at that time President of the American Medical Association,<sup>4</sup> in referring to the current desire of American women for what has been facetiously designated as the "barber-pole figure" gave this advice: "Do not blindly follow beauty ideals that endanger your health and even your chances for motherhood. Before you roll off or starve off or steam off that pound of flesh, find out whether you shouldn't rather be putting it on. When you have found out, follow the advice of medical science, instead of pinning your faith to a fad." This advice was scarcely uttered before another commercially exploitable device, the cigaret, was invoked to assist in ministering to the desire for weight reduction. In 1927 it was pointed out<sup>5</sup> how the increase of our knowledge of calories and vitamins, of exercise and massage, of electrical apparatus and thyroid extracts, has made the control of the body weight a highly technical matter. Newspapers, magazines and billboards are deluged with advertisements of nostrums of varying efficiency and danger, guaranteed not to speed up the body activities and to lessen its absorption of food. Intricate electrical manipulating or vibrating devices, the writer said, are offered to women of ample figures and means for weight reduction purposes.

The craze for reducing represents one of the many instances in which the medical profession may exhibit its philanthropic and altruistic purposes. The public cannot always be depended on to protect itself from its own follies. The movement to prevent unwise and fanatical reduction in body weight must be considered as an activity of preventive medicine worthy of the consideration of every intelligent man or woman.

An added illustration of some of the possible unfavorable reactions to inadequate nutrition has recently been recorded by Turner<sup>6</sup> of Mount Holyoke College. She had previously described a test<sup>7</sup> which gives an index of the ability of the circulation to adapt itself to changes in position. It involves observations on heart rate and arterial pressures during a prolonged period of quiet standing and control periods of reclining or sitting posture. These appear to furnish readily data quite as suggestive as those of exercise versus rest that are commonly employed in judging

of circulatory efficiency. Many persons know that they are apt to grow dizzy or to faint if they stand for any considerable period. Some of them have definite ways of trying to protect themselves which amount to helping the blood back to the heart by exercise, as by shifting the weight rhythmically, contracting and relaxing the leg muscles, and, in general, by making as extensive movements as they can make undetected, for they are usually ashamed of their limitations. Some take deep breaths frequently, thus increasing the aspiration of the thorax. As Turner points out, when the whole series of phenomena is scrutinized, the evidence for a decreased return of blood becomes impressive. Her most recent studies demonstrate that it is "easier" to stand after than before a meal. This improvement in circulatory adjustment in prolonged quiet standing due to the meal is related presumably to a better return of blood to the heart. According to Turner the picture may be one of persistent massage by the movements of the alimentary tract, thus pushing the blood, now present in enlarged amounts in the digestive system, back toward the heart so abundantly that the supply is entirely adequate to overcome the unfortunate efforts of gravity when the subject rises and stands still. There are actual evidences that "reducing" may produce a slower reclining pulse with a decreased pulse pressure. When a person presenting this condition attempts to stand for a time the outcome may be a very low pulse pressure, as in starvation. The picture thus is one of physiologic deterioration rather than "that elusive thing, fitness." As Turner, who has large experience with college girls, points out, emphasis is placed by these results on the maintenance of efficient circulatory responses by a suitable nutritional program. The youth of this country is at present face to face with the stultifying spectacle of a choice between the advice of the cigaret vender or that of intelligent physicians in matters relating to health.—Jour. A. M. A., March 16, 1929.

4. Your Weight and How to Control It, New York, 1927.

5. Turner, Abby H.: Personal Character of the Prolonged Standing Circulatory Reaction and Factors Influencing It. Am. J. Physiol. 87:667 (Jan.) 1929.

6. Turner, Abby H.: Am. J. Physiol. 80:601 (May), 1927; 81:197 (June), 1927.

## UNDULANT FEVER

In 125 cases of undulant fever that occurred in Iowa, a clinical investigation made by A. V. Hardy, Iowa City (Journal A. M. A., March 16, 1929), revealed that most of the patients lived on farms or in country towns. The occupational groups chiefly involved were farmers and packing house workers. There was a striking variability in the symptomatology and course. The relative frequency and severity of the common symptoms is shown. Positive physical observations were few, the most frequent being an enlarged spleen. The temperature was generally intermittent or remittent, and undulations were not often apparent. Ordinarily there was a slight leukopenia and a decrease in the neutrophils. The diagnoses were confirmed by agglutination tests, almost always repeated, and, when possible, by blood cultures.

# ROSTER

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1931

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Medearis, P. H.	Tahlequah
Thompson, J. M.	Tahlequah

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Gable, J. J.	Norman
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Hilsmeye, F. E.	Norman

Howell, O. E.	Norman
Kniseley, H. B.	Norman
Lambert, J. B.	Lexington
Lowther, R. D.	Norman
Mayfield, W. T.	Norman
Schmidt, Eleanor L.	Univ. Okla., Norman
Steen, Carl T.	Norman
Stephens, E. F.	Norman
Thacker, R. E.	Lexington
Turley, L. A.	Norman
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Dunlap, Perry G.	Lawton
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Malcolm, John W.	Lawton
Martin, Chesley M.	Elgin
Mason, Wm. J.	Lawton
Mitchell, E. Brent	Lawton
Stewart, A. H.	Lawton

## COTTON

Alexander, C. W.	Temple
Baker, G. W.	Walters
House, C. F.	Walters

## CRAIG

Adams, F. M.	Vinita
Bagby, Louis	Vinita
Bell, C. P.	Welch
Cornwell, N. L.	Meridian
Doggett, Sylvester	Vinita
Elam, B. L.	Centralia
Gastineau, F. T.	Vinita
Hays, P. L.	Vinita
Herron, A. W.	Vinita
Marks, W. R.	Vinita
Mitchell, R. L.	Veterans Bureau, Muskogee
Neer, C. S.	Vinita
Staples, J. H. L.	Bluejacket
Stough, D. B.	Vinita
Walker, J. F.	Grove

## CREEK

Bisbee, W. G.	Bristow
Coppedge, O. C.	Bristow
Cowart, O. H.	Bristow
Croston, G. C.	Sapulpa
Haas, Harry	Sapulpa
Harrington, W. E.	Depew
Hollis, J. E.	Bristow
Jones, Alva	Sapulpa
Jones, Ellis	Sapulpa
King, E. W.	Bristow
Lampton, J. B.	Sapulpa
Lewis, Peter K.	Sapulpa
Longmire, W. P.	Sapulpa
Mattenlee, J. M.	Sapulpa

McCallum, Carl L.	Sapulpa
McDonald, C. R.	Mannford
Mote, Paul	Sapulpa
Neal, Wm. J.	Drumright
Reynolds, E. W.	Bristow
Sanger, Paul	Drumright
Shrader, Chas.	Bristow
Sisler, Frank H.	Bristow
Sweeney, Roy M.	Sapulpa
Turner, F. W.	Sapulpa
Wells, John M.	Bristow
Williams, J. Clay	Bristow

## CUSTER

Alexander, C. J.	Clinton
Boyd, T. A.	Weatherford
Darnell, E. E.	Clinton
Darnell, Marjorie G.	Clinton
Frizzell, J. T.	Clinton
Gossm, K. D.	Custer
Lamb, Ellis	Clinton
Lamb, Lealon E.	Clinton
Loyd, E. M.	Taloga
McBurney, C. H.	Clinton
Parker, O. H.	Custer
Parker, W. W.	Thomas
Rogers, McLain	Clinton
Ruhl, N. E.	Weatherford
Seba, W. E.	Leedy
Vieregg, F. R.	Clinton
Williams, Gordon D.	Weatherford

## GARFIELD

Bitting, B. T.	Enid
Champlin, Paul B.	Enid
Cotton, Lee W.	Enid
Duffy, Francis M.	Enid
Field, Julian	Enid
Francisco, Glenn	Enid
Francisco, J. W.	Enid
Gardner, P. B.	Enid
Gregg, O. R.	Enid
Hambel, V. R.	Enid
Harris, D. S.	Drummond
Hartman, Geo.	Sharron, Pa.
Hinson, T. B.	Enid
Hopkins, P. W.	Enid
Hudson, F. H.	Enid
Hudson, H. H.	Enid
Kendall, W. L.	Enid
Kiebler, W. G.	Enid
Lamerton, Wm. E.	Enid
Mahoney, J. E.	Enid
Mayberry, S. N.	Enid
McEvoy, S. H.	Enid
McInnis, A. L.	Enid
Moore, J. W. 2716½ Robinson St., Oklahoma City	
Neilson, W. P.	Enid
Newell, W. B.	Enid
Piper, A. S.	Enid
Rhodes, W. H.	Enid
Roberts, D. D.	Enid
Shannon, H. R.	Enid
Swank, J. R.	Enid
Tedrowe, C. W.	Enid
Vandever, H. F.	Enid
Walker, John R.	Enid
Watson, J. M.	Enid
Wigner, R. H.	Enid
Wilkins, A. E.	Covington
Wolf, E. J.	Waukomis

## GARVIN

Alexander, Robert M.	Paoli
Branum, T. C.	Pauls Valley
Buckholz, W. H.	Lindsay

Burns, Samuel L.	Stratford
Callaway, John R.	Pauls Valley
Greening, Wm. P.	Pauls Valley
Gross, T. F.	Lindsay
Johnson, Galvin L.	Pauls Valley
Lindsey, Ray H.	Pauls Valley
Lindsey, Newton H.	Pauls Valley
Markham, Hugh P.	Pauls Valley
Monroe, Hugh	Lindsay
Pratt, C. M.	Lindsay
Robberson, M. E.	Wynnewood
Shi, Agustus H.	Stratford
Smith, Lester P.	Elmore City
Sullivan, C. L.	Elmore City
Taylor, E. F.	Maysville
Tucker, J. W.	Lindsay
Walker, Thomas	Wynnewood
Wilson, H. P.	Wynnewood

## GRADY

Ambrister, J. C.	Chickasha
Antle, H. C.	Chickasha
Barry, W. R.	Alex
Baye, Walter J.	Chickasha
Bledsoe, Martha	Chickasha
Boon, U. C.	Chickasha
Carmichael, M. M.	Alex
Cook, W. H.	Chickasha
Dawson, E. L.	Chickasha
Downey, D. S.	Chickasha
Emanuel, L. E.	Chickasha
Emanuel, Roy E.	Chickasha
Gerard, G. R.	Chickasha
Hampton, P. J.	Rush Springs
Hume, R.	Mingo
Leeds, A. B.	Chickasha
Little, Jessie S.	Mingo
Livermore, W. H.	Chickasha
Mason, Rebecca	Chickasha
McClure, H. M.	Chickasha
Mitchell, C. P.	Chickasha
Nunnery, A. W.	Chickasha
Renegar, J. F.	Tuttle
Woods, L. E.	Chickasha

## GRANT

Drennan, G. T.	Pond Creek
Hamilton, Abraham	Manchester
Hardy, I. V.	Medford
Lawson, E. E.	Medford
Lively, S. A.	Wakita
Tucker, J. M.	Nash

## GREER

Austin, C. W.	Mangum
Border, G. F.	Mangum
Chambers, M. E.	Vinson
Cherry, G. P.	Mangum
Dodson, W. O.	Willow
Hollis, J. B.	Mangum
Jeter, O. R.	Mangum
Lansden, J. B.	Granite
Lowe, J. T.	Mangum
McGregor, F. H.	Mangum
Meredith, J. S.	Duke
Nelson, H. J.	Granite
Nunnery, T. J.	Granite
Pearson, L. E.	Reed
Poer, E. M.	Mangum
Shaw, C. C., Hubbard Hospital, Oklahoma City	

## HARMON

Allgood, John M.	Gould
Hopkins, Samuel W.	Hollis
Husband, Wm. G.	Hollis
Jones, James E.	Hollis

Lynch, Russell H.	Hollis
Ray, W. T.	Gould
Yeargan, Wm. M.	Hollis

**HASKELL**

Hill, Arthur T.	Stigler
Johnson, Emmett	Kinta
Rumley, J. C.	Stigler
Terrell, Ross F.	Stigler
Turner, T. Boyd	Stigler
Williams, Napoleon K.	McCurtain

**HUGHES**

Atkins, W. D.	Holdenville
Baker, J. H.	Lamar
Bentley, J. A.	Allen
Davenport, A. L.	Holdenville
Diggs, G. W.	Wetumka
Felix, T. B.	Holdenville
Floyd, W. E.	Holdenville
Hamilton, S. H.	Non
Hemphill, J. A.	Wetumka
Hicks, C. A.	Wetumka
Martin, C. C.	Calvin
McCary, D. Y.	Holdenville
Mitchell, P. E.	Wetumka
Morris, R. D.	Allen
Musser, J. F.	Calvin
Scott, J. D.	Holdenville
Silverman, A. H.	Holdenville
Taylor, Wm. L.	Holdenville
Wallace, C. S.	Holdenville
Whittle, C. C.	Holdenville

**JACKSON**

Abernethy, Edward A.	Altus
Bird, Jesse	Eldorado
Brown, Roderick F.	Altus
Crow, Emory S.	Olustee
Ensey, James E.	Blair
Fox, Raymond H.	Altus
Hix, Jos. B.	Altus
Humphrey, J. A.	Martha
Mabry, E. W.	Altus
Mays, R. H.	Duke
McConnell, L. H.	Altus
Pyle, Oscar S.	Altus
Reid, John Robert	Altus
Rudell, Wm. P.	Altus
Spears, Claud G.	Altus
Stults, John Samuel	Altus
Taylor, Robt. Z.	Blair
Watson, O. Alton	Altus

**JEFFERSON**

Andreskowski, W. T.	Ryan
Browning, W. M.	Waurika
Burgess, Wm. C.	Ringling
Collins, D. B.	Waurika
Derr, J. I.	Waurika
Edwards, F. M.	Ringling
Maupin, C. M.	Waurika
McPherson, J. M.	Terrall
Mingus, F. M.	Ringling
Strasner, W. R.	Ryan
Wade, L. L.	Ryan
Watson, J. W.	Ryan

**JOHNSON**

Clark, Guy	Milburn
Looney, J. T.	Tishomingo

**KAY**

Amstrong, W. O.	Ponca City
Arrendell, C. W.	Ponca City
Barker, J. C.	Kaw City

Beatty, J. H.	Tonkawa
Berry, G. L.	Blackwell
Browne, H. S.	Ponca City
Clift, Merl	Blackwell
Cooper, F. M.	Ponca City
Denham, T. W.	Three Sands
Edwards, P. A.	Nardin
Gibson, R. B.	Ponca City
Gordon, D. M.	Ponca City
Gowey, H. O.	Newkirk
Havens, A. R.	Blackwell
Hawkins, J. C.	Blackwell
Hazen, A. L.	Newkirk
Hudson, J. O.	Braman
Jones, J. A.	Tonkawa
Kramer, Allen C.	Ponca City
Leslie, W. M.	Blackwell
Lipscomb, W. P.	Ponca City
Matthews, Dewey	Tonkawa
McClurkin, W. N.	Ponca City
Miller, D. W.	Blackwell
Moore, G. C.	Ponca City
Niemann, G. H.	Ponca City
Northcutt, C. E.	Ponca City
Nuckols, A. S.	Ponca City
Risser, A. S.	Blackwell
Robertson, W. A. T.	Ponca City
Vance, L. C.	Ponca City
Waggoner, E. E.	Tonkawa
Walker, I. D.	Tonkawa
Werner, J. W.	Newkirk
White, M. S.	Blackwell
Winter, John S.	Ponca City
Woll, J. C.	Tonkawa

**KINGFISHER**

Cavett, E. R.	Loyal
Dillard, J. A.	Cashion
Dixon, A.	Hennessey
Fisk, Chas. W.	Kingfisher
Gose, C. O.	Hennessey
Hodgson, C. M.	Kingfisher
Meredith, A. O.	Kingfisher
Pendleton, John W.	Kingfisher
Rector, Newton	Hennessey
Scott, Frank	Kingfisher

**KIOWA**

Adams, J. L.	Hobart
Bonham, J. M.	Hobart
Bryce, J. R.	Snyder
Gray, Melvin	Mt. View
Hathaway, A. H.	Mt. View
Land, J. A.	Hobart
Lloyd, H. C.	Hobart
McIlwain, Wm.	Lone Wolf
Miles, E. P.	Hobart
Moore, J. H.	Hobart
Preston, C. R.	Mt. Park
Ritter, J. M.	Roosevelt
Walker, F. E.	Lone Wolf
Watkins, B. H.	Hobart
Winter, J. D.	Hobart

**LATIMER**

Evins, E. L.	Wilburton
Hamilton, E. B.	Wilburton
Harris, J. M.	Wilburton
Henry, T. L.	Wilburton
Morrison, C. R.	Box 281, Stillwater
Rich, R. L.	Red Oak

**LEFLORE**

Baker, F. P.	Talihina
Booth, G. R.	LeFlore
Collins, E. L.	Panama

Dean, S. C.	Howe
Duff, W. M.	Braden
Fair, E. N.	Heavener
Gilliam, W. C.	Spiro
Hardy, Harrell	Poteau
Harrison, M. W.	Sandy Point
Harvey, John H.	Heavener
Head, William	Talihina
Hunt, W. J.	Poteau
Jones, L. D.	Talihina
Lunsford, W. F.	Poteau
Minor, R. W.	Williams
Shippey, Wm. L.	Wister
Van Cleave, Wm. E.	Talihina
Woodson, E. M.	Poteau
Wright, R. L.	Talihina

## LINCOLN

Adams, J. W.	Chandler
Baird, Sr., W. D.	Stroud
Brown, F. C.	Sparks
Brown, R. A.	Prague
Davis, W. B.	Stroud
Davis, Wm. H.	Chandler
Erwin, Para F.	Wellston
Glenn, J. O.	Stroud
Hancock, J. M.	Chandler
Hannah, Reuben H.	Prague
Hurlbut, E. F.	Meeker
Iles, Harry C.	Prague
Jenkins, H. B.	Tryon
Marshall, Arch M.	Chandler
Nash, W. G.	Sparks
Nickell, U. E.	Davenport
Norwood, Frank H.	Prague
Robertson, C. W.	Chandler
Rollins, John S.	Prague
Sosbee, J. W.	Stroud

## LOGAN

Allan, Robert	Guthrie
Barker, Chas. B.	Guthrie
Barker, E. O.	Guthrie
Barker, Pauline	Guthrie
Branson, C. S.	Coyle
Butler, J. O.	Crescent
Childers, A. G. T.	Mulhall
Goodrich, E. E.	Crescent
Gray, Dan	Guthrie
Hahn, Lewis A.	Guthrie
Hill, C. B.	Guthrie
Larkin, H. W.	Guthrie
LeHew, Jr., J. L.	Guthrie
Melvin, J. L.	Guthrie
Miller, Wm. C.	Guthrie
Petty, C. S.	Guthrie
Ringrose, R. F.	Guthrie
Ritzhaupt, Louis H.	Guthrie
Souter, J. E.	Guthrie
Trigg, Franklin E.	Guthrie
West, A. A.	Guthrie

## MAJOR

Specht, Elsie L.	Fairview
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## MARSHALL

Collins, J. A.	Willis
Haynie, W. D.	Kingston
Holland, J. L.	Madill
Robinson, P. F.	Madill
Veazy, J. H.	Madill

## MAYES

Adams, Sylba, Cheyenne River Agency, So. Dak.	
Bryant, W. C.	Choteau
Hollingsworth, J. E.	Strang

Puckett, Carl	22 West 6th St., Okla. City
Whitaker, W. J.	Pryor
White, L. C.	Adair

## McCLAIN

Barger, G. S.	Purcell
Dawson, O. O.	Wayne
Kolb, I. N.	Blanchard
McCurdy, W. C.	Purcell
Slover, W. B.	Blanchard

## McCURTAIN

Baird, W. G., 728½ Sweetzer, Los Angeles, Calif.	
Barker, N. L.	Broken Bow
Clarkson, A. W.	Valliant
Hall, Lyman S.	Broken Bow
Huckabay, C. R., 1325 N. E. 23rd, Oklahoma City	
Jones, Isaac G.	Broken Bow
Kelleam, E. A.	Anadarko
Moreland, B. F.	Shults
Moreland, J. T.	Idabel
Moreland, W. A.	Idabel
Sherrill, R. H.	Broken Bow
Thompson, J. M.	Walters
Williams, R. D.	Idabel

## McINTOSH

*Bennett, Dyton	Texanna
Jacobs, L. I.	Hanna
Lee, N. P.	Checotah
Little, D. E.	Eufaula
Smith, F. L.	Eufaula
Tolleson, W. A.	Eufaula
West, G. W.	Eufaula
*Deceased	

## MURRAY

Annadown, Paul V.	Sulphur
Bailey, Howson C.	Sulphur
Ball, Ernest	801 13th St., Sulphur
Brown, A. P.	Davis
Brown, Byron B.	Davis
Brown, I. N.	Fletcher
Keller, J. R.	Sulphur
Luster, J. C.	Davis
Mullins, Glenn	Sulphur
Powell, W. H.	Sulphur
Slover, Geo. W.	Sulphur
Sprouce, Oscar W.	Sulphur
Sullivan, Andrew H.	Sulphur

## MUSKOGEE COUNTY

Earnest, A. N. Veteran's Hospital, Asheville, N. C.	
Hamm, S. G.	Haskell
Joblin, W. R.	Porter
Murphy, Chas. P., Edw. Hines Hosp., Hines, Ill.	
Pearce, W. E.	Boynton
Scott, Hugh	Edw. Hines Hosp., Hines, Ill.
Shakelford, T. T.	Haskell

## MUSKOGEE

Ballantine, H. T.	Surety Bldg.
Berry, W. D.	Barnes Bldg.
Blakemore, J. L.	1609 Boston
Bruton, L. D.	Com. Natl. Bank Bldg.
Campbell, J. F.	Barnes Bldg
Coachman, E. H.	Barnes Bldg.
DeGroot, C. E.	Manhattan Bldg.
Dorwart, F. G.	Barnes Bldg.
Donnell, R. N.	Raymond Bldg.
Everly, A. W.	Equity Bldg.
Ewing, F. W.	Surety Bldg.
Fite, E. H.	Barnes Bldg.
Fite, W. P.	Barnes Bldg.
Fryer, S. J.	Surety Bldg.
Fullenwider, C. M.	Barnes Bldg.
Gregory, A. L.	Manhattan Bldg.

Harris, A. W.	Surety Bldg.
Heitzman, C. W.	Barnes Bldg.
Holcombe, R. N.	Surety Bldg.
Keith, E. S.	D and Dayton
King, F. S.	Surety Bldg.
Klass, O. C.	Surety Bldg.
McAlister, L. S.	Barnes Bldg.
Mitchell, S. E.	2429 Boston
Mobley, A. L.	1017 Emporia
Muller, J. A.	Veteran's Bureau
Neely, S. D.	Commercial Bank Bldg.
Nichols, J. T.	Equity Bldg.
Oldham, I. B., Sr.	426 No. 6th St.
Oldham, I. B., Jr.	426 No. 6th St.
Rafter, J. G.	Manhattan Bldg.
Reynolds, John	First Natl. Bank Bldg.
Rice, C. V.	Barnes Bldg.
Scott, H. A.	Surety Bldg.
Stocks, A. L.	2010 Boston
Thompson, C. A.	Veteran's Hospital
Thompson, M. K.	Surety Bldg.
Vittum, J. S.	Barnes Bldg.
Warterfield, F. E., Sr.	Com. Natl. Bank Bldg.
Walton, F. L.	Surety Bldg.
White, C. E.	Surety Bldg.
White, J. H.	Surety Bldg.
Wilkiemeyer, F. J.	Barnes Bldg.
Williams, F. T.	Veteran's Bureau
Wolfe, I. C.	426 North 6th St.

## NOBLE

Cavitt, R. A.	Morrison
Coldiron, D. F.	Perry
Francis, J. W.	Perry
Gaines, S. H.	Lucien
Knutz, S.	Perry
Owen, B. A.	Perry
Renfrow, T. F.	Billings

## NOWATA

Dolson, F. R.	Nowata
Lawson, D. M.	Nowata
Prentiss, H. M.	Nowata
Prentiss, M. B.	Nowata
Roberts, S. P.	Nowata
Scott, M. B.	Delaware
Sudderth, J. P.	Nowata
Waters, G. A.	Lenapah

## OKFUSKEE

Adams, Allen C.	Weleetka
Bloss, C. M.	Okemah
Bomberger, C. C.	Paden
Brice, M. O.	Okemah
Cochran, C. M.	Okemah
Dovell, John C.	Paden
Jenkins, W. P.	Bearden
Kennedy, J. A.	Okemah
Keyes, R.	Okemah
Lucas, A. C.	Castle
Moyse, J. L.	Okemah
Nye, L. A.	Okemah
Pemberton, J. M.	2400 S. Harvey, Okla. City
Preston, J. R.	Weleetka
Preston, T. R.	Weleetka
Spickard, L. J.	Okemah

## OKLAHOMA COUNTY

Blachly, L. S.	
	State Health Dept., Jacksonville, Fla.
Bowden, D. T., State Health Dept., Jackson, Miss.	
Dougherty, Virgil F.	401 E. 10 St.
Fitz, A. G., Taming Fu Hoppi, Prov. N. China	
Flesher, Thos. H.	Edmond
Hunter, George	Wewoka
Lyon, Jas. I.	Edmond

Rolater, J. B.	Cave Springs, Georgia
Ruhl, A. M.	Edmond
Sands, A. J.	Choctaw
Stone, S. N.	Edmond

## OKLAHOMA CITY

Adams, Robt. H.	210 W. Commerce
Akin, R. A.	Med. Arts Bldg.
Alford, J. M.	Med. Arts Bldg.
Allen, E. P.	1200 North Walker
Andrews, Leila E.	1200 North Walker
Bailey, F. M.	1219 West 21st
Bailey, W. H.	300 West 12th
Balyeat, Ray M.	1200 North Walker
Barker, Chas. E.	1200 North Walker
Bates, C. E.	519 Key Bldg.
Berry, C. N.	Med. Arts Bldg.
Beyer, M. B.	2006 West 39th
Binkley, J. G.	Med. Arts Bldg.
Blachly, C. D.	Med. Arts Bldg.
Blesh, A. L.	300 West 12th
Boggs, Nathan	Perrine Bldg.
Bolend, Floyd J.	1200 North Walker
Bolend, Rex	Med. Arts Bldg.
Bondurant, C. P.	Med. Arts Bldg.
Borecky, George L.	Med. Arts Bldg.
Bradley, H. C.	Perrine Bldg.
Branham, D. W.	1200 North Walker
Brewer, A. M.	Perrine Bldg.
Brittain, Fannie Lou	Med. Arts Bldg.
Brundage, C. L.	Med. Arts Bldg.
Buchanan, T. A.	American Natl. Bank Bldg.
Burton, John F.	1200 N. Walker
Butler, H. W.	1200 North Walker
Cailey, Leo F.	Med. Arts Bldg.
Cates, Albert	Med. Arts Bldg.
Caviness, J. J.	1200 N. Walker
Charney, L. H.	132 West 4th
Chase, A. B.	Colcord Bldg.
Christian, Paul C.	518 Key Bldg.
Cloudman, H. H.	Med. Arts Bldg.
Clymer, C. E.	Med. Arts Bldg.
Coley, A. J.	Med. Arts Bldg.
Collins, H. Dale	Med. Arts Bldg.
Crawford, Paul H.	Med. Arts Bldg.
Cunningham, S. R.	Med. Arts Bldg.
Daily, H. J.	Med. Arts Bldg.
Davis, C. E.	Med. Arts Bldg.
Davis, E. P.	Med. Arts Bldg.
*Day, C. R.	Hales Bldg.
DeMand, F. A.	Med. Arts Bldg.
DePorte, S.	American Natl. Bank Bldg.
Dersch, Walter	Med. Arts Bldg.
Dickson, Green K.	1200 North Walker
Dowdy, Thomas W.	Med. Arts Bldg.
Duncan, D. G.	Med. Arts Bldg.
Early, R. O.	Med. Arts Bldg.
Eastland, W. E.	Med. Arts Bldg.
Eley, N. Price	Med. Arts Bldg.
Erwin, F. B.	Med. Arts Bldg.
Eskridge, J. B.	1200 North Walker
Fagin, Herman	1200 North Walker
Ferguson, E. S.	Med. Arts Bldg.
Field, C. H.	Med. Arts Bldg.
Fishman, C. J.	132 West 4th
Foerster, H. A.	Med. Arts Bldg.
Fowler, W. A.	1002 Maple, Fayetteville, Ark.
Frierson, S. E.	Med. Arts Bldg.
Fulton, George	American Natl. Bank Bldg.
Fuller, W. Banks	1312½ South Agnew
Garrison, Geo. H.	1200 N. Walker
Gee, O. J.	Med. Arts Bldg.
Goldfain, E.	717 North Robinson
Goodwin, R. Q.	Med. Arts Bldg.
Graening, P. K.	Med. Arts Bldg.
Gray, Floyd	1200 N. Walker
*Deceased.	

Gray, J. Worth	Huckins Estate Bldg.	Myers, Ralph E.	1200 North Walker
Gregory, M. S.	Med. Arts Bldg.	Nagle, P. S.	Med. Arts Bldg.
Guthrie, A. L.	1200 North Walker	Newton, L. A.	Med. Arts Bldg.
Hall, C. H.	Med. Arts Bldg.	Noell, Robert L.	900 W. Main
Hammonds, O. O.	Med. Arts Bldg.	Nunnery, E. E.	2531½ South Robinson
Haney, A. H.	Med. Arts Bldg.	O'Donoghue, D. H.	Med. Arts Bldg.
Harbison, Frank	Terminal Bldg.	Padberg, J. W.	1800 West 16th
Harbison, J. E.	Terminal Bldg.	Parks, K. G.	Med. Arts Bldg.
Harris, H. W.	Med. Arts Bldg.	Paulus, D. D.	300 West 12th
Haskett, Paul E.	First Natl Bank Bldg.	Payte, J. I.	Med. Arts Bldg.
Hatchett, J. A.	Med. Arts Bldg.	Penick, G.	Colcord Bldg.
Hathaway, E. P.	300 W. 12th	Phelps, A. S.	Med. Arts Bldg.
Hayes, B. A.	1200 North Walker	Pine, John S.	Med. Arts Bldg.
Heatley, John E.	Med. Arts Bldg.	Postelle, J. M.	947 West 13th
Hicks, Fred B.	Med. Arts Bldg.	Pounders, Carroll M.	1200 North Walker
Hinchee, G. W.	1415 West 34th	Price, J. S.	1200 North Walker
Hirshfield, A. C.	Med. Arts Bldg.	Reck, J. A.	Colcord Bldg.
Holliday, J. R.	1200 North Walker	Reed, Horace	1200 North Walker
Hooper, W. F.	1804 Linwood Blvd.	Reed, J. R.	Med. Arts Bldg.
Howard, R. M.	1200 North Walker	Reichmann, Ruth S.	Med. Arts Bldg.
Howell, C. A.	Perrine Blddg.	Riely, Lea A.	Med. Arts Bldg.
Hyroop, Gilbert L.	Med. Arts Bldg.	Riley, John W.	119 West 5th
Jacobs, Minard F.	947 West 13th	Robinson, J. H.	300 West 12th
Janco, Leon	10 West Park	Roddy John A.	Med. Arts Bldg.
Jeter, Hugh	1200 North Walker	Roland, M. M.	Med. Arts Bldg.
Jolly, W. J.	Med. Arts Bldg.	Rosenberger, F. E.	208 Security Bldg.
Jones, Hugh C.	Med. Arts Bldg.	Rountree, C. R.	1200 N. Walker
Kelly, J. F.	Med. Arts Bldg.	Rucks, W. W.	300 West 12th
Kelso, Joseph W.	Med. Arts Bldg.	Runkle, R. E.	528 West 21st
Keltz, Bert F.	Med. Arts Bldg.	Salomon, A. L.	1200 North Walker
Kernodle, S. E.	119 West 5th	Salsbury, C. R.	200 East 14th
Kimball, G. H.	Colcord Bldg.	Sanger, Fenton A.	Cotton Exchange Bldg.
Knowles, Charles E.	Med. Arts Bldg.	Sanger, F. M.	Cotton Exchange Bldg.
Kuchar, V.	Hightower Bldg.	Sanger, Winnie M.	Cotton Exchange Bldg.
Kuhn, J. F.	Med. Arts Bldg.	Sewell, Bennett N.	1728 West 16th
Lane, L. C.	Med. Arts Bldg.	Shelton, J. W.	Med. Arts Bldg.
Lain, E. S.	Med. Arts Bldg.	Shuler, A. C.	Osler Bldg.
LaMotte, G. A.	Colcord Bldg.	Smith, Delbert G.	Med. Arts Bldg.
Langston, Wann	800 East 13th	Smith, M.	1400 Classen Blvd.
Lawson, N. E.	Med. Arts Bldg.	Snow, J. B.	1200 N. Walker
Lee, Clarence	Med. Arts Bldg.	Starr, Norman S.	Med. Arts Bldg.
Lehmer, Elizabeth	132 West 4th	Starry, L. J.	1200 North Walker
Lewis, A. R.	Hightower Bldg.	Stephenson, J. C.	800 East 13th St.
Lingenfelter, F. M.	1200 North Walker	Stout, M. E.	209 West 13th St.
Long, LeRoy	Med. Arts Bldg.	Strader, S. Ernest	Med. Arts Bldg.
Long, LeRoy D.	Med. Arts Bldg.	Strother, S. P.	Med. Arts Bldg.
Long, Ross D.	945 West 13th	Sullivan, Ernest	Med. Arts Bldg.
Long, Wendell	Med. Arts Bldg.	Sullivan, E. S.	Med. Arts Bldg.
Love, R. S.	Med. Arts Bldg.	Syfert, A. C.	Perrine Bldg.
Lowry, Dick	1200 North Walker	Tabor, George R.	Am. Natl Bank Bldg.
Lowry, Tom	1200 North Walker	Taylor, C. B.	Med. Arts Bldg.
MacCabe, R. S.	Med. Arts Bldg.	Taylor, W. M.	1200 North Walker
MacDonald, J. C.	300 West 12th	Thuringer, Joseph M.	800 East 13th St.
Margo, Elias	717 North Robinson	Todd, H. Coulter	Colcord Bldg.
Martin, J. T.	1200 North Walker	Townsend, C. W.	Med. Arts Bldg.
Mathews, G. F.	State Capitol Bldg.	Trice, S. T.	133½ W. Commerce
McBride, Earl D.	717 North Robinson	Turner, Henry H.	1200 North Walker
McGee, J. P.	Med. Arts Bldg.	Underwood, E. L.	Hales Bldg.
McHenry, D. D.	Med. Arts Bldg.	Vahlburg, E. R.	Perrine Bldg.
McHenry, L. C.	Med. Arts Bldg.	Von Wedel, Curt	Colcord Bldg.
McLaughlin, J. R.	Med. Arts Bldg.	Wails, T. G.	Med. Arts Bldg.
McNeill, Phillip M.	Med. Arts Bldg.	Walden, Dewey H.	1200 N. Walker
Mills, R. C.	203 City Hall	Wallace, W. J.	Med. Arts Bldg.
Miles, W. H.	203 City Hall	Warmack, J. C.	Trades Natl Bank Bldg.
Miller, N. L.	Med. Arts Bldg.	Weir, M. W.	Colcord Bldg.
Moor, H. D.	800 East 13th	Wells, Eva	Med. Arts Bldg.
Moore, C. D.	Perrine Bldg.	Wells, W. W.	Med. Arts Bldg.
Moore, Ellis	Med. Arts Bldg.	West, W. K.	1200 N. Walker
Moorman, Floyd	1200 North Walker	Westfall, L. M.	Med. Arts Bldg.
Moorman, L. J.	1200 N. Walker	White, Arthur W.	Med. Arts Bldg.
Moreledge, Walker	1200 North Walker	White, Oscar R.	1200 N. Walker
Moth, M. V.	American Natl Bldg.	Williams, L. C.	1200 N. Walker
Mraz, J. Z.	300 West 12th	Williams, H. M.	Med. Arts Bldg.
Murdoch, R. L.	Med. Arts Bldg.	Williamson, W. H.	2400 South Harvey
Musick, E. R.	Med. Arts Bldg.	Wildman, S. F.	Med. Arts Bldg.
Musick, V. H.	217½ West C	Wilson, E. C.	Med. Arts Bldg.
Mussil, W. M.	Med Arts Bldg.	Wilson, K. J.	Med. Arts Bldg.

Wolff, John Powers .....	Med. Arts Bldg.
Woodward, Neil W. ....	1200 North Walker
Wright, Harper .....	217½ West C
Yeakel, E. L. ....	Med. Arts Bldg.
Young, A. M. ....	Perrine Bldg.

## OKMULGEE

Alexander, Lin .....	Oklmulgee
Alexander, T. C. ....	Okmulgee
Berry, Thos. M. ....	Okmulgee
Bollinger, I. W. ....	Henryetta
Boswell, H. D. ....	Henryetta
Byram, E. C. ....	Okmulgee
Carloss, T. C. ....	Morris
Carnell, M. D. ....	Okmulgee
Cooke, C. H. ....	Okmulgee
Cott, W. M. ....	Okmulgee
Edwards, J. G. ....	Okmulgee
Ferguson, J. B. ....	Okmulgee
Glismann, M. B. ....	Okmulgee
Holmes, A. R. ....	Henryetta
Hudson, W. S. ....	Okmulgee
Hughey, A. G. ....	Dewar
Kilpatrick, G. A. ....	Henryetta
Leslie, S. B. ....	Okmulgee
Matheney, J. C. ....	Okmulgee
McKinney, G. Y. ....	Henryetta
Milroy, J. A. ....	Okmulgee
Ming, C. M. ....	Okmulgee
Mitchener, W. C. ....	Okmulgee
Nelson, J. P. ....	Schulter
Rains, H. L. ....	Okmulgee
Randel, D. M. ....	Okmulgee
Randel, H. O. ....	Okmulgee
Rembert, J. J. C. ....	Okmulgee
Robinson, J. C. ....	Henryetta
Rodda, E. D. ....	Okmulgee
Sanderson, W. C. ....	Henryetta
Shelton, T. H. ....	Okmulgee
Simpson, N. N. ....	Henryetta
Stark, W. W. ....	Okmulgee
Torrance, L. B. ....	Okmulgee
Vernon, W. C. ....	Okmulgee
Wails, J. O. ....	P. O. Box 1193, Okmulgee
Wallace, V. M. ....	Morris
Watson, F. S. ....	Okmulgee
Watson, W. S. ....	Okmulgee
Windham, L. B. ....	Okmulgee

## OSAGE

Aaron, W. H. ....	Pawhuska
Alexander, E. T. ....	Barnsdall
Barritt, R. J. ....	Pawhuska
Baylor, Richard A. ....	Fairfax
Caton, C. N. ....	Wynona
Chase, W. W. ....	Barnsdall
Colley, T. J. ....	Hominy
Day, C. H. ....	Pawhuska
Dozier, B. E. ....	Webb City
First, F. R. ....	713 Mayo Bldg., Tulsa
Garrison, G. I. ....	Fairfax
Goss, G. W. ....	Pawhuska
Govan, T. P. ....	Pawhuska
Guild, C. H. ....	Shidler
Hemphill, P. H. ....	Pawhuska
Karasek, M. ....	P. O. Box 343, Shidler
Keyes, E. C. ....	Shidler
Lipe, E. N. ....	Fairfax
Logan, C. K. ....	Hominy
Neale, Q. B. ....	Pawhuska
Price, Aaron S. ....	136 Waverly Place, N. Y. City
Reed, J. M. ....	Magnolia Springs, Alabama
Rust, M. E. ....	Pawhuska
Shoun, J. G. ....	Fairfax
Stanbro, G. E. ....	4503 Chestnut, Philadelphia, Pa.
Sullivan, B. F. ....	Barnsdall
Summers, H. C. ....	Public Square, Marion, Ill.

Walker, G. I. ....	Hominy
Walker, Roscoe .....	Pawhuska
Williams, C. W. ....	Pawhuska
Worten, Divonis .....	Pawhuska

## OTTAWA

Aisenstadt, E. Albert .....	Picher
Barry, J. R. ....	Picher
Bradshaw, J. O. ....	Welch
Butler, V. V. ....	Picher
Cannon, R. F. ....	Miami
Chesnut, W. G. ....	Miami
Colvert, G. W. ....	Miami
Connell, D. L. ....	Picher
Cooter, A. M. ....	Miami
Craig, J. W. ....	Miami
DeArman, M. M. ....	Miami
DeArman, T. M. ....	Miami
Deans, F. R. ....	Miami
DeTar, Geo. A. ....	Miami
Dolan, W. M. ....	Picher
Hampton, J. B. ....	Commerce
Harper, R. H. ....	Afton
Helm, F. P. ....	Miami
Hughes, A. R. ....	Wyandotte
Jacobs, J. C. ....	Miami
Jacoby, J. S. ....	Commerce
Lightfoot, J. B. ....	Miami
Mabry, E. D. ....	1740 16th St., Oklahoma City
McCallum, Chas. ....	Quapaw
McLellan, C. A. ....	Miami
McNaughton, G. P. ....	Miami
Meriwether, F. V. ....	Picher
Miller, H. K. ....	Fairland
Moon, J. T. ....	Miami
Pinnell, General .....	Miami
Ralston, B. W. ....	Commerce
Ranson, J. T. ....	U. S. Manic Hospital, Ellis Island, N. Y.
Rowley, W. T. ....	Milborn, Ky.
Russell, Richard .....	Picher
Shelton, B. W. ....	Miami
Smith, W. B. ....	Miami
Taylor, G. W. ....	Quapaw
Troutt, L. W. ....	Afton
Willis, M. P. ....	Commerce
Wormington, F. L. ....	Miami

## PAWNEE

Beitmen, C. E. ....	Skedee
Jones, R. E. ....	Pawnee
McFarland, H. B. ....	Cleveland
Roberts, J. A. ....	2001 N. W. 23rd St., Okla. City
Robinson, E. T. ....	Cleveland

## PAYNE

Adams, James E. ....	Cushing
Beach, C. H. ....	Glencoe
Bergegrun, Katherine .....	Stillwater
Cleverdon, L. A. ....	Stillwater
Davis, Benj. ....	Cushing
Davidson, W. N. ....	Cushing
Freideman, Paul .....	Stillwater
Gillen, Geo. H. ....	Cushing
Graham, Robert N. ....	Yale
Gray, J. T. ....	Stillwater
Harris, E. M. ....	Cushing
Herrington, D. J. ....	Cushing
Holbrook, R. W. ....	Perkins
Hudson, W. B. ....	Yale
Leatherock, R. E. ....	Cushing
Love, T. A. ....	Cushing
Manning, H. C. ....	Cushing
Martin, Emmett O. ....	Cushing
Martin, John .....	Cushing
Martin, L. F. ....	Stillwater
McCartney, Vivian M. ....	Stillwater

Mitchell, L. A.	Stillwater
Perry, D. L.	Cushing
Richardson, P. M.	Cushing
Roberts, R. E.	Stillwater
Sexton, C. E.	Stillwater
Shull, R. J.	Stillwater
Waggoner, R. E.	Stillwater
Wilhite, L. P.	Perkins

## PITTSBURG

Barton, V. H.	McAlester
Baum, F. J.	McAlester
Browning, R. L.	Hartshorne
Bunn, A. D.	Savanna
Bussey, H. N.	2043 W. 23rd St., Okla. City
Carlock, A. E.	Hartshorne
Chapman, T. S.	McAlester
Crews, J. W.	Atwood
Davis, J. E.	McAlester
Dorrough, Joe	Haileyville
Echols, J. W.	McAlester
George, L. J.	Stuart
Griffith, A.	McAlester
Hailey, W. P.	Haileyville
Harris, Chas. T.	Kiowa
Hudson, W. K.	Hartshorne
Johnston, J. C.	McAlester
Kies, B. B.	Pittsburg
Kilpatrick, Geo. A.	McAlester
Kuyrkendall, L. C.	McAlester
Lewallen, W. P.	Canadian
McCarley, T. H.	McAlester
Miller, Frank A.	Hartshorne
Munn, J. A.	McAlester
Norris, T. T.	Krebs
Park, J. F.	McAlester
Pearce, Chas. M.	McAlester
Pemberton, R. K.	McAlester
Ramsay, W. G.	Quinton
Rice, O. W.	McAlester
Sames W. W.	McAlester
Shankle, H. D.	Hartshorne
U. S. Veterans Bureau, Ft. Harrison, Mont.	
Wait, W. C.	McAlester
Watson, F. L.	McAlester
Welch, A. J.	McAlester
Williams, C. O.	McAlester
Willour, L. S.	McAlester
Wilson, Herbert A.	McAlester
Wilson, McClellan	McAlester

## PONTOTOC

Breco, J. G.	Ada
Breckenridge, N. B.	Meridia, Yucatan
Brydia, Catherine T.	Ada
Canada, E. A.	Ada
Castleberry, R. T.	Ada
Craig, J. R.	Ada
Cummings, I. L.	Ada
Dawson, B. B.	Ada
Dean, W. F.	Ada
Fuller, T. .... 129½ West Grand, Oklahoma	City
Lewis, E. F.	Ada
Lewis, M. L.	Ada
McKeel, S. A.	Ada
McNew, M. C.	Ada
Miller, O. H.	Ada
Needham, C. F.	Ada
Ross, S. P.	Ada
Rutledge, J. A.	Ada
Sugg, A. R.	Ada
Threlkeld, W. R.	Ada
Webster, M. M.	Ada
Welborn, O. E.	Ada

## POTTAWATOMIE

Anderson, Robert M.	Shawnee
Applewhite, G. H.	Shawnee
Baker, McKenzie A.	Shawnee
Ball, W. A.	Wanette
Baxter, Geo. S.	Shawnee
Blount, W. T.	Maud
Bradford, Walter C.	Shawnee
Byrum, J. M.	Shawnee
Campbell, Hiram G.	Shawnee
Carson, F. LeRoy	Shawnee
Cordell, U. S.	Macomb
Culbertson, R. R.	Maud
Cullum, J. E.	Tecumseh
Fortson, J. L.	Tecumseh
Gallaher, F. C.	Shawnee
Gallaher, Wm. M.	Shawnee
Gaston, John I.	Shawnee
Gillick, David W.	Shawnee
Gray, E. J.	Tecumseh
Hughes, J. Elmer	Shawnee
Isvekov, V. G.	Shawnee
Kaylor, R. C.	McLoud
Marshall, J. W.	Shawnee
Matthews, W. F.	Earlsboro
McClendon, J. W.	Earlsboro
McFarling, Alonzo C.	Shawnee
Newlin, Frances P.	Shawnee
Norvell, E. E., 222½ S.W. 25th St., Okla. City	
Paramore, Chas. F.	Shawnee
Rice, E. Eugene	Shawnee
Rowland, Tazwell D.	Shawnee
Royster, J. H.	Wanette
Sanders, Thos. C.	Shawnee
Scott, John H.	Shawnee
Shivers, Eraine	St. Louis, Okla.
Smith, Morris	Earlsboro
Stevens, Walter S.	Shawnee
Stooksbury, Jacob M.	Shawnee
Terrell, E. P.	Shawnee
Turner, James H.	Cumberland Hospital, Brooklyn, N. Y.
Wagner, H. A.	Shawnee
Walker, J. A.	Shawnee
Walker, J. E.	Shawnee
Williams, Alpha M.	Shawnee
Wright, Herbert L.	Shawnee

## PUSHMATAHA

Burnett, J. A.	Waldron, Ark.
Connally, D. W.	Clayton
Huckabay, B. M.	Antlers
Johnson, H. C.	Antlers
Lawson, John S.	Clayton
Patterson, E. S.	Antlers
Wyatt, S. B.	Antlers

## ROGER MILLS COUNTY

Shaunty, J. N.	Gilmer, Texas
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## ROGERS

Anderson, F. A.	Claremore
Arnold, A. M.	Claremore
Bassman, Caroline	Claremore
Beson, C. W.	Claremore
Bushyhead, J. C.	Claremore
Collins, B. F.	Claremore
Hays, W. F.	Claremore
Howard, W. A.	Chelsea
Jennings, K. D.	Chelsea
Mason, W. S.	Claremore
Meloy, R. C.	Claremore
Nelson, Ira	care of Indian Hosp., Claremore

## SEMINOLE

Bates, C. W.	Seminole
Bates, J. A.	Seminole

Briggs, T. H.	Wewoka
Butler, O. C.	Seminole
Chambers, Claude S.	Seminole
Davis, John	Seminole
Deaton, A. N.	Wewoka
Geisen, Andrew F.	Konawa
Grimes, John P.	Wewoka
Hancock, A. R.	Seminole
Harber, J. N.	Seminole
Harrison, T. F.	Wewoka
Hartshorne, G. E.	Seminole
Hill, T. A.	2400 So. Harvey, Okla. City
Huddleston, W. T.	Konawa
Kiles, H. A.	Konawa
Knight, W. L.	Wewoka
Long, W. J.	Konawa
Martin, W. S.	Wewoka
McAlister, E. R.	Seminole
McGovern, J. D.	Wewoka
Mills, J. T.	Sasakwa
Mills, N. W.	Charity Hospital, Jackson, Miss.
Moore, W. L.	Sasakwa
Mosher, D. D.	Seminole
Price, J. T.	Seminole
Reeder, H. M.	Konawa
Scott, Thos. A.	Bowlegs
Stratton, F. L.	Seminole
Van Sandt, Guy B.	Wewoka
Van Sandt, M. Morten	Wewoka
Walker, Agnew A.	Wewoka
Ware, T. H.	Seminole

## SEQUOYAH

Jones, S. B.	Sallisaw
Morrow, J. A.	Sallisaw
Wood, T. F.	Sallisaw

## STEPHENS

Brewer, J. R.	Marlow
Burnett, B. H.	Duncan
Carmicheal, J. B.	Duncan
Chumley, C. P.	Duncan
Garrett, S. S.	County Line
Harrison, C. M.	Comanche
Ivy, W. S.	Duncan
Johnson, F. M.	Loco
Lindly, E. C.	Duncan
Linzey, J. H.	Comanche
Long, D.	Duncan
McClain, W. Z.	Marlow
McMahan, A. M.	Duncan
Nieweg, J. W.	Duncan
Overton, L. M.	Duncan
Pate, J. D.	Duncan
Patterson, J. L.	Duncan
Pruitt, C. C.	Duncan
Richards, C. C.	Marlow
Richardson, R. W.	Comanche
Russell, R. L.	Marlow
Salmon, W. T.	Duncan
Tabor, G. E.	Marlow
Talley, C. M.	Marlow
Thomason, E. B., Gen. Delivery, Long View, Texas	
Weedn, A. J.	Duncan
Williamson, S. H.	Duncan

## TEXAS

Hayes, R. B.	Guymon
Langston, Wm. H.	Guymon
Lee, Daniel S.	Guymon
Risen, Wm. J.	Hooker
Wilson, C. E.	Box 596, Boise City

## TILLMAN

Allen, C. Curtis	Frederick
Arrington, J. E.	Frederick

Bacon, O. G.	Frederick
Campbell, Coyne	Frederick
Childers, J. E.	Tipton
Collier, Boy N.	Tipton
Fisher, Roy L.	Frederick
Foshee, W. C.	Grandfield
Fuqua, W. A.	Grandfield
Harris, H. C.	Grandfield
McKellar, Milo M.	Loveland
Osborne, J. D.	Frederick
Reynolds, J. C.	Frederick
Spurgeon, T. F.	Frederick
Wilson, R. E.	Davidson

## TULSA COUNTY

Allison, T. P.	Sand Springs
Anderson, J. R.	Wright Clinic, Monroe, La.
Boso, F. M., 812 M. and P. Bldg., Amarillo, Texas	
Calhoun, C. E.	Sand Springs
Chalmers, J. S.	Homes Hosp., Sand Springs
Davis, B. J.	Sand Springs
Franklin, O.	Broken Arrow
Goddard, R. K.	Skiatook
Harris, B.	Jenks
Hille, H. L.	Collinsville
Humphrey, B. H.	Sperry
Hutchinson, A.	Bixby
Laws, J. H.	Broken Arrow
McAnally, W. F., P. O. Box 1756, Pittsburg, Pa.	
McLean, E. W.	Jenks
Reynolds, J. M., 415 N. Willow, Compton, Calif.	
Stemmons, J. M.	Collinsville
Ward, H. P.	Leonard
Wilks, F. M.	Collinsville
Young, C. W.	Cleveland
Zink, G. W.	Red Fork

## TULSA

Allen, V. K.	1001 Med. Arts Bldg.
Ament, C. M.	305 Ritz Bldg.
Anderson, E. S.	St. Johns Hospital
Armstrong, O. C.	812 Med. Arts Bldg.
Atchley, R. Q.	507 Med. Arts Bldg.
Atkins, P. N.	1011 Med. Arts Bldg.
Barham, J. H.	314 New Daniels
Baum, E. E.	510 Med. Arts Bldg.
Beard, D. A.	302 Roberts Bldg.
Beesley, W. W.	510 Palace Bldg.
Beyers, J. W.	401 Palace Bldg.
Billington, J. J.	404 Med. Arts Bldg.
Black, H. J.	209 Med. Arts Bldg.
Bolton, J. Fred	211 Med. Arts Bldg.
Bradfield, S. J.	607 Med. Arts Bldg.
Bradley, C. E.	202 Med. Arts Bldg.
Branley, Bernard L.	208 Med. Arts Bldg.
Braswell, J. C.	1109 Med. Arts Bldg.
Brown, Paul R.	517 Med. Arts Bldg.
Browne, Henry	616 Med. Arts Bldg.
Brookshire, J. E.	507 Palace Bldg.
Brogden, J. C.	708 Mayo Bldg.
Butcher, J. P.	204 Robinson Bldg.
Bryan, Jr., W. J.	801 Med. Arts Bldg.
Calhoun, H. W.	902 Med. Arts Bldg.
Calhoun, W. H.	404 Med. Arts Bldg.
Callahan, H. W.	902 Med. Arts Bldg.
Campbell, W. M.	1301½ E. 15th St.
Charbonnet, P. N.	206 Med. Arts Bldg.
Childs, H. C.	710 Med. Arts Bldg.
Childs, J. W.	710 Med. Arts Bldg.
Clinton, Fred S.	823 Wright Bldg.
Clulow, G. H.	302 Philcade Bldg.
Cohenour, E. L.	1102 Med. Arts Bldg.
Cook, W. A.	1107 Med. Arts Bldg.
Coulter, T. B.	1011 Med. Arts Bldg.
Cronk, Fred Y.	801 Med. Arts Bldg.
Davis, A. H.	604 South Cincinnati
Davis, T. H.	404 Med. Arts Bldg.

Dean, W. A.	610 Med. Arts Bldg.	Nelson, M. O.	307 Med. Arts Bldg.
Denny, E. Rankin	801 Med. Arts Bldg.	Norman, Geo.	2543 East Admiral
Dieffenbach, N. J.	221 Castle Bldg.	Nesbitt, E. P.	917 Med. Arts Bldg.
Dillon, G. A.	209 New Daniels Bldg.	Nesbitt, P. P.	917 Med. Arts Bldg.
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Dunseth, G. O.	117 West 4th St.	Osborne, Geo. R.	801 Med. Arts Bldg.
Ellefson, O. D.	801 Med Arts Bldg.	Pavy, C. A.	812 Med. Arts Bldg.
Emerson, A. V.	212 Med. Arts Bldg.	Peden, J. C.	612 Med. Arts Bldg.
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Farris, H. L.	303 Med. Arts Bldg.	Perry, J. C.	618 Mc Birney Bldg.
Farris, R. C.	1702 S. Quanna	Perry, M. L.	618 Mc Birney Bldg.
Feehan, W. J.	807 South Elgin	Perry, Sid	618 Mc Birney Bldg.
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Flanagan, O. A.	302 Med. Arts Bldg.	Pigford, R. C.	1002 Med. Arts Bldg.
Flinn, G. W.	310 Med. Arts Bldg.	Presson, L. C.	902 Med. Arts Bldg.
Ford, H. W.	608 Tulsa Trust Bldg.	Price, Harry	407 Med. Arts Bldg.
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Garrett, D. L.	604 South Cincinnati	Rhodes, R. E. L.	509 Med. Arts Bldg.
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Gilbert, J. B.	307 Roberts Bldg.	Roberts, T. R.	2647 E. 7th St.
Glass, Fred A.	404 Med. Arts Bldg.	Rogers, J. W.	407 Med. Arts Bldg.
Goodman, S.	603 Med. Arts Bldg.	Rogers, W. H.	505 New Daniels Bldg.
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Graff, Bennett	1702 South Quannah	Rushing, F. E.	505 Med. Arts Bldg.
Green, Harry	1116 Med. Arts Bldg.	Sabin, C. W.	336 Richards Bldg.
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Hall, G. H.	420 Mc Birney Bldg.	Shepard, R. M.	606 Med. Arts Bldg.
Haralson, C. H.	816 Med. Arts Bldg.	Shepard, S. C.	410 Med. Arts Bldg.
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Hart, Marshall O.	708 Med. Arts Bldg.	Simpson, Carl F.	301 Med. Arts Bldg.
Haskins, T. H.	336 Richards Bldg.	Sipple, M. E.	801 Med. Arts Bldg.
Hawley, S. D.	1215 Atlas Life Bldg.	Sisler, Wade H.	807 South Elgin
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Henderson, F. W.	304 Med. Arts Bldg.	Smith, N. R.	703 Med. Arts Bldg.
Hoke, C. C.	901 Petroleum Bldg.	Smith, R. N.	1017 Med. Arts Bldg.
Holliday, O. M.	1744 East 14th Place	Smith, R. R.	403 Daniels Bldg.
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Harms, J. H.	Cordell
Jones, J. P.	Dill
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Meek, Frederick B.	Alva
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Saffold, Benj. W.	Freedom
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Nyland, G. A.	Gate
Pierson, O. A.	Woodward
Rose, W. L.	Woodward
Silverthorne, C. R.	Woodward
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NOTE—Corrections and additions to the above list will be cheerfully accepted.

INDEXED  
R. L. W.

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NUMBER 7

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OF THE

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NUMBER 7

## THE NORMAL AND THE DISEASED HEART

J. H. MUSSER, M.D.  
NEW ORLEANS

(From the Department of Medicine, Tulane University School of Medicine.)

I have selected for the subject of my oration this day, the heart. This may seem like a trite and threadbare subject to bring before this splendid organization, but I have done so because I believe all practitioners of medicine, be they engaged in special or general medical work, feel that they are well acquainted with this organ, that they are capable always of making a diagnosis of heart disease and in most instances that they can manage successfully cardiac disorders. This is undoubtedly true, but, because of the ever increasing and ever piling up mass of information on any and every subject of medicine, the average man, no matter how industrious, cannot keep pace with this mountainous conglomeration of material, coming from the pen of so many authors. Therefore, it is thought to be of interest to present some of the newer concepts of the heart in health and in disease rather than to undertake to deliver a lecture on economics, or a discussion of the social problems of medicine, or a philosophic address or even a political oration.

### THE ANATOMY OF THE HEART

This always functioning muscular organ, never ceasing to work as long as life exists, situated in the middle mediastinum, lies obliquely in the thorax with the base at the level of the fifth to eighth thoracic vertebrae and the apex in the midelavicular line, opposite the space between the fifth and sixth costal cartilage. Practically the entire anterior surface of the heart is made up of the right ventricle with only a thin edge of the left ventricle presenting itself at the extreme outermost left margin of the heart. The details of the blood supply and the arrangement of the valves and nerves that control cardiac action are familiar to you all. The pathways of cardiac impulses may not, however, be quite so well known, so I will undertake a very brief discussion of the conduction system. The pacemaker

of the heart, in which the impulses arise, is the sinus node, a specialized collection of tissue of club shape, which lies in the junction of the superior vena cava and the right auricle. The impulse arises at this particular spot, is transferred fanwise, according to Lewis, through the auricle by tissue as yet unidentified to the auriculoventricular node which was first demonstrated by Tawara in 1906. From this particular node the impulse is carried through the bundle of His, a neuromuscular structure, which contains muscle tissue with nerve fibers embedded and enmeshed in the muscular tissue, splitting at and straddling the membranous portion of the interventricular septum. The bundle divides near the aortic valve into two main branches spoken of as the right and left branches. The left branch passes through the interventricular septum and divides into many branches, subdividing and resubdividing until we have the minute and intricate Purkinje fibers, which are present in enormous numbers throughout the ventricular wall. The right branch runs as a single strand to the anterior papillary muscle and then also divides and subdivides, undergoing arborization. It, too, divides into the Purkinje fibers.

### PHYSIOLOGY OF THE HEART

In considering the mechanism of the normal heart beat it is advisable to understand that the contraction wave starts in the sino-auricular node either because of faster rate of anabolism or because the specialized tissue of the node may be affected by minute alterations in the pH of the blood. "This anabolic process has potential energy, and when it is touched off by nervous impulses, kinetic energy is released, the level of discharge being reached simultaneously by all cells." (Herrmann).

The heart muscle has five fundamental functions, some of which are inherent in any muscle tissue, others of which are either peculiar to heart muscle or work differently than in ordinary muscle. These five functions are *excitability*, *tonicity*, *stimulus production*, *conductivity*, and *contractility*, not given in the order of their importance but given in this form so that it may be possible to dismiss the first

two with the statement that these particular functions are in no ways different from that of voluntary muscle. *Stimulus production*, however, is something which is inherent in cardiac muscle alone and seems to be present in any portion of this type of muscle tissue. It depends, of course, upon the presence in heart muscle of nerve elements. In conjunction with this particular function there has arisen much discussion as to whether impulses could arise in a muscle without the nervous tissue. Recent studies have shown, however, that nervous tissue is present in the specialized tissue of the heart and therefore that the myogenetic theory cannot be said to exist; whereas, the neurogenetic theory is substantiated. In the intact normal heart the vagus inhibits, the sympathetics increase stimulus formation. The next important function of heart muscle, that of conductivity, depends upon the presence of specialized neuromuscular tissue in the myocardium, such as is mentioned in the bundle of His when discussing the anatomy of the heart. Contractility, with its subsequent period of contraction, is followed by the refractory stage during which time, for a brief period at least, it is impossible to stimulate the heart to contract. Gradually again in time periods of fractions of a second the ability to contract returns, but the shorter is the period of rest, the more diminished is the output of the heart. In other words, the degree of contraction varies in relation to the length of the previous diastole. This important physiological fact is of great value to the clinician because the slower is the heart, the greater is the opportunity for rest and the more powerful is the systolic output; whereas, the more rapid the heart action, the greater is the chance of cardiac failure. Therefore, slowing of the heart is of primary importance in the treatment of cardiac disease. The all or none law bears a direct relation to the function of contractility. This law implies that the heart contracts to the height of its ability at the time, depending upon the stage of diastole.

#### THE EFFECTS OF DISEASE UPON THE HEART

Disease affects the heart in one of several ways. It requires greater work on the part of the organ with consequent development of fatigue, and to obviate the effect of fatigue the heart muscle hypertrophies, eventually hypertrophying to such an extent that it can no longer do so and then dilatation ensues. Disease also directly injures the musculature of the organ, produces pathologic changes in the organ, and lastly it may occasion altera-

tion of the blood supply, which in turn will cause to eventuate disease processes.

#### CRITERIA FOR THE DIAGNOSIS OF HEART DISEASE

In an individual who complains of certain symptoms or who shows certain physical findings, how much stress should one lay upon these observations and how much should they be discounted? It is difficult to answer these questions. Subjective symptoms are always likely to bring about certain variations according to the reaction of the patient to various stimuli, and the symptoms of which the patient complains are not as reliable as are the objective findings; but, on the other hand, it is only through proper interpretation of subjective symptoms that often the physician may arrive at a clear understanding of the functional ability of the heart muscle. There are certain subjective symptoms which are of extreme importance in the diagnosis of heart disease. There are combined subjective and objective symptoms which likewise are extremely valuable in arriving at a diagnosis, but these symptoms may occur in conditions other than heart disease; whereas, the ten important objective signs, when one or more are present, are definitely pathognomonic of heart disease (Herrmann).

The first important subjective symptom is *heart pain*. This pain may be due to simple fatigue of the heart muscle such as happens in patients with chronic hypertensive disease or disturbed rhythm; it may be of the type of paroxysmal heart pain usually spoken of as angina pectoris; it may be the acute overwhelming agony of coronary thrombosis: it may arise from aortic disease or it may be secondary to several other factors of much less importance. Palpitation of the heart is a symptom which the patients know a great deal about and about which the physician knows much less. Palpitation of the heart may occur in a variety of conditions. When due to heart dysfunction, as it is in many cases, it is the result of irregularity of the heart action. *Dyspnea* implies an insufficiency of the left ventricle. It arises as result of decrease in the rate of flow of the blood with a consequent increase in the rate of respiration in order to oxygenate the blood more rapidly when it is arriving in the lung in smaller quantities than normal. Meakins has shown that the minute output of the heart which is diseased is 3.5 liters; whereas, in the normal heart it is from 5.5 to 7 liters. Shortness of breath may also be due to decreased pulmonary

ventilation as result of presence of exudate in lung alveoli or lung capillaries and because of the mechanical cutting down of the aeration surface of the lung by the presence of a much enlarged heart or by a considerable collection of pleural fluid which compresses the lung tissue and throws it out of commission. The vital capacity, as a consequence of these several factors, is reduced in heart disease; and while the average individual may not have the normal capacity of 2.5 liters per square meter of body surface, a cardiac patient has a markedly reduced vital capacity, which will improve as he improves or still further diminish as his condition gets worse. Dyspnea may also be caused by other factors much less important than decrease in flow of fluid, such as decreased metabolic rate or defective interchange of gases. *Fatigue* is another extremely important symptom of beginning cardiac insufficiency. Often it appears before other subjective symptoms as dyspnea, pain or palpitation. Frequently it is the symptom which brings the patient first to the physician.

Combined subjective and objective symptoms are so classified because a patient may observe them or may not, but the doctor always looks for them. *Cyanosis* is the result of oxygen unsaturation and depends upon the reduction in the rate of blood flow as a result of the failure of the left ventricle or on secondary pulmonary changes or because of congestion of the systemic veins as a result of the inability of the right heart promptly and efficiently to empty itself. *Edema* depends upon obstructed blood flow. Because the venous and capillary pressure is greatest in dependent parts, it follows that edema develops first in the lower limbs. When the patients are in the upright position or if they are confined to bed in a sitting posture, it will be felt and seen best over the extreme end of the spine.

The pathognomonic objective signs of heart disease may be present in a few other conditions, but as a rule only one of them; whereas, in heart disease always invariably two or more will be noted. These definite and positive objective findings are as follows:

1. Engorgement of the neck veins.
2. Displacement of the cardiac impulse.
3. Abnormal pulsations.
4. Thrills and shocks.

5. Excessive or high pulse rate.
6. Irregular pulse.
7. Sclerosis of peripheral vessels.
8. Enlargement of the area of aortic and cardiac dullness.
9. Diastolic murmurs.
10. Persistent hypertension.
11. Laboratory evidences of chronic nephritis.

The easiest of these to demonstrate are the irregularities or alterations in the rate of the pulse, thrills, and diastolic murmurs. These three are less prone to be affected by the individual skill of the examiner; practically none of the eleven pathognomonic signs are affected by the apprehension and fear of the patient.

#### PHYSIOLOGIC DISTURBANCES

Under this heading it is proper to discuss cardiac irregularities. No effort will be made to bring out more than the very salient features of the action of a heart which is not regular.

*Sinus arrhythmia* is a well-known type of irregularity occurring in young people in which there is usually an inspiratory quickening and expiratory slowing of the heart rate; although the respiratory relation may be reversed.

*Premature contractions*, extrasystoles or ectopics, are new and isolated impulses arising anywhere in the special tissue and occurring usually irregularly. They are found with a fair degree of frequency in such conditions as hypertensive heart disease or rheumatic heart disease, but also they may develop because of excessive imbibition of coffee and tea or the use of tobacco; while the plebian complaint of gas in the stomach is responsible for a certain number of ectopics in the heart unaffected by structural disease. A patient often recognizes these extra beats and sometimes the subjective recognition is extremely disturbing to the peace of mind of a high-strung, nervous individual. The physician recognizes the condition as dropped beats which may occur occasionally or if with a degree of regularity producing the pulsus bigeminus or trigeminus. Quinidine is often of considerable value in doses of 5 grains three times daily in controlling these abnormal beats.

*Paroxysmal tachycardia* is readily diagnosed. The sudden starting and equally abrupt stopping of a markedly increased heart rate is so characteristic that it is diagnosed usually by the patients' story of how their heart behaves. While it is true that this type of irregularity occurs

more frequently in rheumatic heart disease with mitral stenosis than in any other cardiac condition, nevertheless it may be produced in an apparently normal heart by such factors as are responsible for extrasystoles. In about fifty per cent of patients the attack may be brought to an end by vagus pressure, pressing first on the right vagus with the ball of the thumb at the level of the cricoid cartilage, pressing for about fifteen seconds and then pressing over the left vagus, if the rapid heart action does not cease. Repeat this four or five times before coming to the conclusion that vagus pressure is not going to bring to a stop the paroxysm of tachycardia at that time. Sometimes deep breathing or gulping of ice water will carry to a conclusion an attack of rapid heart action. In the interval between attacks small doses of digitalis should be given a trial.

*Heart block* may be either partial or complete; in the latter case the ventricular beats are from twenty-eight to forty-four per minute, the ventricle beating at its own inherent rate. Partial block may be merely an increase in A-V conduction time. Heart block in a great majority of cases occurs in conjunction with rheumatic heart disease, but, although rheumatic fever is responsible for an appreciable number of cases, syphilis is frequently incriminated. White states that ten per cent of cases are produced by digitalis, while Vaquez, the French cardiologist, says that fifty per cent more closely approximates the true figure. Aside from the slow pulse, a reduplication of the first mitral sound, later of the second mitral, may be observed. Sometimes the patients have the Stokes-Adams syndrome of ventricular standstill with convulsive seizures, which may terminate in death. If these patients are having repeated attacks or have complete or even partial block, barium chloride, persisted in, very often brings about amelioration of symptoms.

An *alternating pulse* is recognized with a fair degree of accuracy in taking blood pressure. It will be noted that every other beat will be responsible for an increase in pressure of five to ten millimeters of mercury. An alternating pulse is of serious prognostic significance, but is not as bad a sign as we thought it was a few years ago.

*Auricular flutter* is one of the few types of irregularities which cannot be recognized by the physician on physical examination in the great majority of cases. The most important criterion is probably the

presence of an irregular heart which may sometimes be made regular by exercise. Fortunately, it is a rare condition. It is a definite indication for administration of digitalis.

*Auricular fibrillation*, occasioning the absolutely irregular heart, is extremely common and is due to the so-called circus movement first described by Nimes and Garrey and definitely established by Lewis. In this condition auricular impulses are shot at the bundle of His at the rate of four hundred fifty to six hundred per minute. The ventricle responds by beating at a rate of sixty to one hundred eighty, depending upon the number of impulses passing through the bundle of His which do not occur during the refractory stage, but always with a complete and total irregularity. In the young individual this particular disturbance of rhythm is due to rheumatic heart disease with mitral stenosis or very much more rarely to the thyroid heart. In the old individual in whom the condition may exist for years and is not incompatible with a relatively good function of the heart, arteriosclerosis produces the condition. When the fibrillation is rapid, there are usually signs of cardiac failure; but in the older arteriosclerotic patient the rate is slow and does not produce symptoms of heart failure. Rapid auricular fibrillation is a definite indication for digitalis and in a few patients the use of quinidine.

*Ventricular fibrillation* is probably quite infrequently recognized. It may be the cause of sudden death during the course of auricular fibrillation or when too much digitalis is given or when a patient dies during chloroform anesthesia.

#### HEART FAILURE

Heart failure may be of the (a) congestive type or (b) anginal type. The first depends almost invariably upon failure of the heart muscle. In this condition the veins of the neck are engorged because of increased back pressure from right heart dilatation and insufficient emptying. The patient is dyspneic and cyanotic; basal rales are heard and edema of the extremities is present; the liver is swollen and tender and urinary excretion is cut down.

In the anginal type of failure there are paroxysms of, or more or less steady, heart pain. This type of failure is very much more prone to occur in males who have passed the age of forty, and it is seen with peculiar frequency among professional classes and notably the practitioners of medicine. Attacks of heart pain are

usually induced by exertion, emotions, or eating, the three "e's." Just what causes these paroxysms of pain is not known. It may be due to spasm of the coronary arteries; it may be that the coronary vessels admit only sufficient blood for ordinary purposes as a result of arteriosclerotic processes; and although MacKenzie holds to the aortic theory, he does speak of the uncertainty of knowledge concerning the cause and says that the condition should always be considered a form of heart failure. In this disturbance the blood pressure may be high or low, usually the former. The treatment of the attack consists of nitroglycerin dissolved under the tongue or morphine hypodermically. Euphyllin increases the rate of coronary flow, therefore is valuable in controlling the pain and lessening the frequency of attacks. Several years ago a great deal of discussion arose as to the value of cervical sympathectomy, by which procedure it is possible to sever the sympathetic pathways to the heart. This form of treatment apparently has not entirely stood the test of time.

#### THE CLASSIFICATION OF HEART DISEASE

The advantages of a complete and full diagnosis are nowhere better exemplified in medicine than in heart disease. A full diagnosis should contain the following information: the factor responsible for the production of the disorder; the anatomic (pathologic) changes manifest; the physiologic disturbance present; and the functional ability of the organ at the time of examination. With these data it is possible to convey to the mind of the individual to whom they are presented a complete picture of the type of heart disease, how it manifests itself, what is to be the ultimate outcome of the case, as well as the possibilities of economic independence.

*Etiologic Diagnosis.* The classification of heart disease of the American Heart Association lists a considerable number of conditions which are responsible for heart damage. A trio of etiologic causes, rheumatic fever, arteriosclerosis and syphilis, is the responsible agent for the great majority of patients who develop signs and symptoms indicating heart disturbance. These three conditions are the cause of 75 per cent of all heart disease. Very much less important factors are bacterial infections, the thyroid or goiter heart, toxic conditions, and congenital lesions. A not inconspicuous group of conditions remain, which may be the cause of heart disease. They are extremely rare and from their

very rarity need not be discussed at the present time.

The anatomic alterations and pathologic changes that take place in the heart from the clinical standpoint include hypertrophy and dilatation of the heart muscle, which muscle, postmortem, may show the presence of fibrosis, fatty infiltration or degeneration, infarction or Aschoff bodies. The physical signs of a diseased endocardium paints for the physician the picture which he is wont to speak of as valvular heart disease. At autopsy may be seen scarring, retraction, overgrowth, or vegetations on the valves. Pericardial lesions are difficult to diagnose at the bedside. In the great majority of cases there are not outstanding physical features indicative of the pathologic lesion, which may be an acute fibrous exudate, an effusion or the formation of adhesions between the two layers of the pericardium. The condition of the coronary vessels is invariably determined by the pathologist. The lesions of these vessels include thrombosis, sclerosis, or the presence of embolic obstruction. Congenital defects should be classified both by the clinician and the pathologist as well as the state of the great vessels, notably whether there is dilatation of the aorta, which may be general as part of the phenomenon of senescence, or saccular as result of syphilis.

The physiologic abnormalities include the several types of irregularities already mentioned.

*Functional Diagnosis.* The estimation of the functional ability of the heart depends in goodly part upon the subjective reactions of the patient to physical effort and to a larger extent to the demonstration of alterations in the existing pathology after a work test has been used. It is customary then to estimate, when there is organic heart disease, as evidence of functional ability of the organ, the ability of the patient to do ordinary work, or, if the cardiac dysfunction is great, to note that in the presence of such heart disease the patient is unable to do ordinary work. The most severe type of marked malfunction of the organ is seen when there is heart failure at rest. This failure may be of the congestive or anginal type as already indicated.

#### THE IMPORTANT ETIOLOGIC TRIO

It is my purpose now to say a few words in regard to the three types of heart disease which are responsible for three-

fourths of the cases diagnosed as heart disease.

*Arteriosclerotic Heart Disease.* General disturbances of circulation or local alterations in the supply of blood to the heart occasion the greatest number of heart patients. The senescent heart is the senile heart in which involution processes have taken place. The condition, caused as it is by alterations in the supply of the blood fundamentally is dependent upon those factors which cause arteriosclerosis and include infection, excessive mental strain, familial tendency and the action of toxic substances. Just how little is known of the etiologic factors responsible for arteriosclerosis is exemplified by the fact that in practically all textbooks lead poisoning is given as one of the causes of a disease which is extremely prevalent and yet this particular cause, usually stressed, is an extremely rare condition.

The patient with a senescent heart complains of symptoms which depend very largely upon general failure of the circulation. They have headaches at times; dizziness on slight exertion is annoying, and their friends notice loss of memory. At times pain in the legs after exercise or transient attacks of aphasia, or even more pronounced cerebral disturbances, are found to depend upon intermittent claudication, which involves the vessel through which an increased amount of blood has to be carried, and which responds to this over-demand by going into spasm, cutting off temporarily the supply of blood to the part.

On examination of such patients, the condition of the peripheral arteries often gives a lead which, followed to its termination, results in the diagnosis. It should not be forgotten, however, that sclerosis of one vessel does not necessarily indicate sclerosis of all vessels and therefore all of the accessible superficial vessels should be palpated. Furthermore, it is important to recall that just as there are variations in the external arteries, so the internal vessels may vary. A man with cerebral arteriosclerosis may have no evidence of coronary arteritis; whereas, he who dies as result of coronary thrombosis may have no distinguishable pathologic alteration of the cerebral vessels.

It is in this type of patient that angina pectoris often develops when they have passed the age of fifty-five. In many cases it is due to the sclerotic changes in the coronaries. It is quite compatible with a low blood pressure.

In the treatment of the patient with the senescent heart much can be done to prolong life and to relieve the symptoms. This is the one type of heart disease in which mild exercise is advisable; but in which the mental activities should be diminished. There is very much less disturbance in the dynamics of the circulation if the patients are not kept in bed for prolonged periods of time. Their headaches, dizziness, and cerebral symptoms in general will be improved with seven hours as a limit, or even six hours, of time which they lie in a prone position. To make up for the sleep they have lost and yet need, it is infinitely better that they take a mid-day nap of several hours or even a nap after the evening meal if the sleep during day time is insufficient, than to have them flat on the back continuously for eight to twelve hours.

*Hypertensive Heart Disease.* A great deal of interest has evinced itself in this particular form of heart disease since the introduction of the sphygmomanometer. Much interest has arisen also because of the frequency which hypertension is responsible for the breaking down of an individual in the prime of his life. It is the man between the ages of forty and sixty who develops this type of disease and often it is the man who is most valuable to the community. Sir William Osler has said that Venus, Mars and Vulcan are responsible for most of the cases of hypertensive heart disease, but certainly Epicurus and Bacchus also play an important part in producing this syndrome. A host of causes has been called into conference to explain why this condition develops. One of the most definite facts that we have to work upon is the undoubtedly familial tendency exhibited by members of the white race to develop this disease. I know of any number of families, male members of which have led a hygienic, sane, God fearing life, who died before the age of fifty of some one or another manifestation of excessive blood pressure.

The symptoms of this condition in the early stages are of no importance to the individual. As a matter of fact, the man with high blood pressure is the big, strong, florid, healthy, pushing, hustling type who always feels at the height of physical efficiency. Then gradually comes the evidence of breakdown. Sad indeed it is to see these patients go to pieces. They have always represented the epitome of everything healthful. When they die, they die as result of various causes. The late

Theodore Janeway, who had an unequaled opportunity of following from incipiency to lethal end a considerable series of patients with hypertension, found that 32.6 per cent of them died of gradual heart failure, 25 per cent of uremia, 15 per cent of apoplexy, 5.6 per cent of angina pectoris, and the remainder of a variety of causes. The early symptoms being absent and the later symptoms of the conditions, just mentioned, coming on often most abruptly would indicate that the average patient is not recognized as having potential hypertensive heart disease until too late. It is for this individual that routine health examinations are decidedly beneficial because certainly much can be done to delay the full-blown disorder by appropriate measures such as reduction of food and salt intake, rest, sufficient mental relaxation, and a removal of disquieting stimuli. A most practical therapeutic measure for these patients, who have to be up and about six days in the week in order to support those who are dependent upon them, is to have them spend the seventh day in bed, absolutely and totally relaxed with a complete cessation and removal from their minds of all matters that come up during the week day. Possibly this may be brought about as a result of the physician's suggestion to avoid thought about such matters or because of the doctor's insistence on taking up some other definitely organized train of thought on that day—the reading of detective stories, the survey of recent biographies, or some such restful reading avocation.

*Rheumatic Heart Disease (Chorea).* The sad feature of rheumatic heart disease lies in the fact that the patient is crippled in young adult life. The man with senescent heart has lived his life and has had his fill of what life brings. The poor young person with this type of disease of the heart at best can look forward only to a life of partial invalidism, which, as Cohn has shown, in the average patient will last for a period of fifteen years from the time of the first attack of rheumatic fever. Chorea, possibly caused by the same virus, but even if such is not the case, bears a very close relation to rheumatic fever and occurs much more frequently in females than in males, approximately two of the former to one of the latter being affected; whereas, in rheumatic fever the ratio is reversed. The two conditions may occur in combination. Chorea damages the heart very much more frequently than does rheumatic fever, but

the damage is much more extensive in rheumatic fever than in chorea. In rheumatic fever the higher the fever and the more pronounced the obvious manifestations, the more severe and the more grave are the cardiac complications.

While a history of out-and-out rheumatic fever as a distinct entity is sometimes hard to elicit from a patient, irregular and atypical forms occur which are undoubtedly due to the same causative organism. These include irregular fever, repeated sore throats, indefinite growing pains, and vague arthritic symptoms; all of which are probably part and parcel of the rheumatic syndrome, which leaves in its wake cardiac involvement. Just how frequently this is a complication of the frank cases of rheumatic fever has been shown by Cohn and Swift, who demonstrated in thirty-five of thirty-seven patients with rheumatic fever electrocardiographic deviations from normal.

The patient with rheumatic heart disease in the majority of cases ultimately develops mitral stenosis and this narrowing of the mitral valve is the end result of the inflammatory changes that were induced by the organisms causing rheumatic fever. These patients complain of usual symptoms of heart failure, but there are three other rather interesting manifestations of the disease that might be mentioned: precordial pain from compression of the left coronary, hoarseness or aphonia from paralysis from the left recurrent laryngeal nerve and often hemoptysis from the damming back of the pulmonary circulation as a result of the obstruction at the mitral valve to the onward flow of the blood stream.

The physical examination of these patients is quite characteristic. They exhibit the mitral facies and the malar flush, tinged with a slight cyanosis; the lips are usually somewhat red. A palpatory examination of the heart yields some such definite information as systolic shock, diastolic thrill, and, in the late stages of the disease a completely irregular action of the organ; while auscultation gives a diastolic murmur, which may be crescendo or diminuendo, and with a ringing, snapping first sound that even in the absence of a murmur and a thrill are so characteristic as almost to make the diagnosis. The accentuated pulmonic second sound and the occasional finding of Graham Steele murmur, an early high-pitched diastolic regurgitant blow over the pulmonic area, are confirmatory evidence.

In the treatment of patients with rheumatic heart disease there are several basic and fundamental therapeutic measures to be observed. If the patient is seen during an attack of rheumatic fever, give a half grain of sodium salicylate combined with an equal amount of sodium bicarbonate per pound of body weight. Keep the patient in bed in case of a mild attack for three weeks after cessation of fever and in more severe cases not less than three months. Take out the tonsils. Information as to the importance of these structures in producing the common relapse, while debatable, is sufficiently conclusive, I believe, to indicate operation. After the patient has gotten well of the rheumatic fever, regulate the life and when auricular fibrillation develops, as it will do sooner or later, put the patient on digitalis and keep him there.

The question of marriage comes up more frequently in this type of heart disease than in any other because of the fact that it is the young patient who has the condition. Advise the male that if he takes up the burden and responsibility of a family, his life expectancy will probably be shortened on account of the additional burden of supporting others besides himself. To the woman the great question is whether or not she can go through the throes of labor. To the inquiring female candidate for matrimony I will say that with the proper medical supervision there is very little danger, comparatively speaking, of a cardiac breakdown as result of parturition. Therefore, unless there is distinct contraindication in physical examination, such as advanced heart failure, there is no reason why the patient should not have one or two babies.

*Syphilitic Heart Disease.* Cardiovascular involvement is found in from 70 to 80 per cent of chronic syphilitics. It is of some interest to note that the patients who show the parenchymatous types of syphilitic cerebral disorders do not show with the same degree of frequency vascular changes, indicative, of course, of the existence of several strains of spirochetes, the most important strain numerically spending its energy in attacking the blood vessels, while the very much less frequent type invades the brain tissue.

In this type of heart disease it was at first believed that the aorta and aortic valves were alone involved. Warthin has shown very definitely that there is present an interstitial myocarditis. In many cases

the myocarditis is as responsible for the symptoms as is the aortic valvular lesion.

The heart symptoms of cardiovascular syphilis, as with the arteriosclerotic heart, develop insidiously, gradually and slowly, and the patient, who has probably reached his fortieth year of life, will begin to complain of anginal pain, paroxysmal dyspnea, and of cerebral circulatory disturbances. When this patient is examined, all the characteristic physical findings may be observed: throbbing arteries, capillary pulse, markedly enlarged heart, a soft, evanescent, and vague diastolic basal murmur, heard usually best at the left of the sternum at the second and third interspace. It is interesting to note that these patients seldom develop cardiac arrhythmia, and of the severe arrhythmias, heart block is the only one of moment.

I want to stress the importance of assiduous, diligent, and careful treatment of the patient who presents himself with these well marked signs of aortic insufficiency. The indication, of course, is to inhibit the progress of the infection, but active syphilitic therapy has been responsible, usually when arsphenamine has been used and possibly because of the toxic effects of arsenic on the heart, for the breakdown of a large number of patients who would probably have kept on for some years before ultimately they would have died. If you use arsphenamine, start with small doses, 0.15 grams, and increase to a quantity no greater than 0.45 grams, giving six to ten injections. If mercury is used, give 2 grains weekly, intramuscularly, for twelve weeks. Probably the most satisfactory drug is bismuth which is given, as a course of treatment, to total 45 grains, 1½ to 2 grains being administered hypodermically twice a week until the completion of the period of treatment. I would give these drugs, stopping for a period of a month and then repeating the course of treatment, continuing to do so until the Wassermann has remained negative on repeated examination. Potassium iodid, it seems needless to state, is to be more or less continuously given over a long period of time.

In spite of all that is done the majority of patients with syphilis rapidly go down hill and response to treatment is unsatisfactory and disappointing.

#### DIGITALIS

No lecture on the heart can be said to be complete unless there is some word as to therapy, and the therapy of heart disease

boils itself down in most cases to the use of digitalis. I will run over briefly the pharmacology of this preparation and the therapeutics. Digitalis lessens the heart rate by stimulation of the vagus to which is added the factor of its effect on the junctional tissues. It increases the contractility of the heart and depresses the peripheral blood vessels. In order to get the full effects of digitalis its administration has to be pushed so that toxic effects are not out of order.

These toxic manifestations include gastric pain, nausea, and vomiting, due to the action of drug on the vomiting center of the brain, diarrhea from time to time, disturbance of vision, coupling of the pulse in 70 per cent of the cases, and development of various other irregularities at infrequent intervals. Digitalis is given when there is congestive heart failure, with a rapid or a slow pulse. In heart failure with slow pulse it improves the contraction of the heart and in rapid acting heart it slows the rate. Digitalis is of no benefit in such conditions as shock and the poisoning of severe infectious diseases, and it is distinctly contraindicated in diphtheria and heart block. Administration of digitalis is on a sane and rational basis. In order to secure digitalization the therapeutic dose is estimated by the following formula: 1 cc. of the tincture to ten pounds of body weight, or 0.1 gram of the powder. If the patient has not had digitalis previously and case is urgent, give a half of the estimated dose, then a fourth, then an eighth and continue with one-eighth dosage. If rapid digitalization in a non-urgent case is required, give one-third, one-third, and one-tenth of the indicated amount. Never give the drug more frequently than every six hours, otherwise toxic effects will not have time to develop before the patient has taken too much of the preparation. If the patient has taken digitalis within the past ten days give one-fourth the estimated dosage at three periods and then a tenth. After the patient has become digitalized with the estimated dose, the maintenance dose for the average individual is 1.5 cc. of the tincture or 0.15 grams of powder. Children require fifty per cent more per pound body weight than do adults. Stop digitalis if the patient is nauseated or shows other toxic effects. Never let the pulse get under 60. If therapeutic effects have been obtained, cease medication. There is no earthly use of giving digitalis intravenously or intramuscularly. Large dosage by

mouth seems to be more efficacious than when given hypodermically. If patient is vomiting as result of gastric congestion from congestive heart failure, give the patient the drug by rectum in doses equivalent to those given by mouth.

In the treatment of heart disease other drugs are occasionally useful—adrenalin in cardiac standstill or Stokes-Adams syndrome, or in angina pectoris; barium chloride, particularly valuable in heart block; ammonia and strychnine the occasional stimulating action of which is entirely reflex through nervous influences; quinidine in cases of auricular fibrillation of short duration which digitalis does not stop; and euphyllin, which increases coronary flow when there is angina pectoris or heart pain.

TUESDAY, MAY, A. M.

QUESTIONS ASKED DR. MUSSER AFTER READING OF HIS PAPER ON THE NORMAL AND DISEASED HEART

*Question.* What particular form of therapy should be employed and what would be the physical limitations in angina pectoris?

*Answer.* I think that as far as physical limitations go, that we must test out the individual patient. I think the average man should control the amount of exercise and physical effort that he carries out so that he has no heart pain. Walking or working up to some slight strain, is the best way to accurately limit the patient's activities. It may be necessary to put the patient to bed for a period of some weeks or even months. He may need absolute rest. As far as therapy is concerned, we depend largely on nitro-glycerin, and it must be used more or less symptomatically according to the frequency of the pains. Sodium nitrite may be used also.

*Question.* How may we stop paroxysmal tachycardia?

*Answer.* Paroxysmal tachycardia can be stopped some times by pressing the ball of the thumb on the vagus for about 15 minutes. If it does not work on the right try the left, and continue until the attack stops. Sometimes pressure on the eye ball may be efficacious. The only other thing that we can do, is to put the patient to bed and give digitalis. There is no doubt in my mind, but that this condition will eventually cause a disturbance of the heart. There is no specific that I know of which will abort the attack. The attack

has to stop just about as abruptly as it came.

*Question.* What is the status of strophanthus?

*Answer.* It is not really advisable to use, because with the various digitalis preparations, notably the tincture and the powder, we have a drug standardized with a great degree of accuracy. Of course however, this drug is an excellent drug. Strophanthine is the best preparation for the administration of cardiac stimulant when we have to give a cardiac drug intravenously. In acute heart failure, strophanthine works very much better than any other digitalis preparation that we have. We do get magnificent results.

Morphine is the drug par excellence in many heart conditions. In acute, congestive failures, give the patient rest, physical rest and indirectly heart rest. I am a great believer in morphine. In coronary occlusion, morphine is reliable.

I give euphyllin in angina pectoris or heart pain as it has a tendency to increase the coronary flow.

In the syphilitic heart, we use bismuth almost entirely. Stokes of Pennsylvania University uses bismuth almost entirely. Bismuth is given as a course of treatment, to total 45 grains— $1\frac{1}{2}$  grains to 2 grains hypodermically two times a week until the end of the period of treatment. I would then stop for a month and then repeat the course of treatment until the Wassermann has remained negative on numerous examinations.

In heart failure give rest, cut down all exercise. Strychnine has no effect as a direct heart stimulant. It does however make the patient feel very much better.

When we have heart failure, we are going to develop signs of muscle failure, so the integrity of the heart muscle is the important and fundamental feature of any study of a heart patient.

We do not know very much about the cause of essential hypertension. The important fact in this condition is that we have essentially a disease of the small blood vessels. We may not be able to actually demonstrate the changes in the blood vessels.

Let us give our patients as much rest as possible. Bleeding and prolonged sweating will often do more harm than good. I do not think in extremely high blood

pressure cases, that we can get very far with treatment. In essential hypertension, the patient does better by change of environment. I have seen cases of high blood pressure, who upon return from a change of environment have a much lowered blood pressure.

We classify essential hypertension as benign and malignant. The benign becomes malignant, when the patient develops retinal changes.

*Question.* Will alcohol cause myocarditis?

*Answer.* I do not believe that myocarditis can be caused by alcohol alone. I knew of a man who for forty years, did not know what it was to go to bed at night sober. We cannot tell how tobacco and alcohol will act on an individual.

*Question.* When is venesection advisable?

*Answer.* When we have acute, congestive failure. Venisection is dangerous in cases bordering on uremia. In congestive heart failure, bleeding helps the patient very much.

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## SOME OBSERVATIONS ON CARDIAC PAIN

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LOUIS FAUGERES BISHOP, M.D.  
LOUIS FAUGERES BISHOP, JR., M.D.  
NEW YORK

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Members of the Oklahoma State Medical Society, I am certainly highly appreciative of the compliment of the invitation to speak to you. I am also conscious of the fact that cardiology has interested many of you. In looking over the Oklahoma State Medical Journal I have seen contributions from here on this subject, so I know that my subject is far from being a new one. I have purposely used the term "cardiac pain" in preference to angina pectoris and believe that as far as possible we ought to speak of pain of cardiac origin due to whatever we can best assume as an etiological basis. There has also grown up in the public mind the belief that in referring to angina pectoris we are always speaking of a fatal disease, which is far from being the case.

I had always thought that the first description of cardiac pain had been made by William Heberden in 1768. Only a few days ago an associate of mine told me that this was not the case and that William

Harvey had observed this and described it 100 years previous. As I believe this to be the earliest description of pain associated with coronary occlusion and rupture of the heart I would like to quote it:

"I add another observation. A noble knight, Sir Robert Darcy, an ancestor of the celebrated physician and most learned man, my very dear friend, Dr. Argent, when he had reached to about the middle period of life, made frequent complaint of certain distressing pain in the chest, especially in the night season; so that dreading at one time syncope at another suffocation in his attacks he led an unquiet and anxious life. He tried many remedies in vain, having had the advice of almost every medical man. The disease going on from bad to worse, he by and by became cachectic and dropsical, and finally grievously distressed he died in one of his paroxysms. In the body of this gentleman, at the inspection of which there were present Dr. Argent, then president of the College of Physicians, and Dr. George, a distinguished theologian and preacher, who was pastor of the parish, we found the wall of the left ventricle of the heart ruptured, having a rent in it of size sufficient to admit any of my fingers, although the wall itself appeared sufficiently thick and strong; this laceration had apparently been caused by an impediment to the passage of the blood from the left ventricle into the arteries."

The next great contribution to cardiac pain was made by William Heberden who so exactly described cardiac pain that this clinical description has not been improved upon up to the present time. It is interesting to note that he considered cardiac pain due to a spasm of the vessels in essence similar to intermittent claudication and the vascular crises. In 1799, Jenner described the association of pain with coronary artery disease. Almost a hundred years elapsed before a means of relieving this symptom by drugs was described and the credit for this is given to Sir Lauder Brunton who first wrote about the use of amyl nitrate for the relief of pain. His original description of the use of this drug is of great historical interest:

"On application to my friend, Dr. Gangee, he kindly furnished me with a supply of pure nitrate, which he himself had made; and on proceeding to try it in the wards, with the sanction of the visiting physician, Dr. J. Hughes Bennett, my hopes were completely fulfilled. On pouring from five to ten drops of the nitrate

on a cloth, and giving it to the patient to inhale, the physiological action took place in from thirty to sixty seconds; and simultaneously with the flushing of the face the pain completely disappeared, and generally did not return till its wonted time next night." This was followed by the introduction by William Murrell of nitroglycerin as a remedy for cardiac pain.

Following these great classic original discoveries the number of contributions to the subject are legion. It is my belief, however, that it was Sir James MacKenzie that re-awakened the interest of the profession in studying this symptom complex, and in looking over the historical aspect of this subject it seems that most contributions have come from England. This is probably due to the fact that the disease is far more common in northern climates than in the tropics.

It is very hard to find an exact definition of what we mean by cardiac pain. Possibly one of the best ways of trying to define this is to consider it paroxysmal pain of cardiac origin. In this paper I am considering coronary thrombosis only as a complication of cardiac pain.

Although this symptom has been fully described since 1768, by Heberden, no one is entirely sure of the etiology of pain. Whether we endorse Albutt's views, that the aorta is the source from which cardiac pain arises, or lean toward MacKenzie's view, that pain arises from exhaustion of the heart muscle, or feel, as is the current opinion, that pain is due to inadequate coronary circulation, the etiology of pain is still an unsolved problem. In most examples of cardiac pain there is the common factor of insufficiency of the coronary circulation. All of us have noted that pain is sometimes a symptom occurring in rheumatic heart disease as well as in the degenerative forms of heart disease. To further substantiate this coronary view, Perry has recently shown that endarteritis of large coronary vessels may be caused by rheumatic infection and that precordial pain is found in cases showing this lesion. He summarizes his conclusions with the following statement: "(1) The main coronary arteries are usually affected in rheumatic carditis. (2) The lesion is a general panarteritis composed of: (a) Intimal thickening more or less cellular. (b) Degenerative and inflammatory lesions of the media. (c) Inflammatory infiltration and fibrosis of the adventitia."

This rather recent pathological contribution to coronary artery disease may ex-

plain examples of pain in rheumatic fever due to coronary insufficiency. It seems to me we are gradually working toward a more complete pathological classification of cardiac pain and that eventually there will be no such thing as unexplained cardiac pain.

Before illustrating this paper with some of our experiences I would like to say a few words concerning the difficulties in studying this symptom complex. In the first place, in spite of the various tests that have been devised to determine an individual's sensitiveness to pain no one test seemed sufficient. An example of these tests is pressure over the styloid process. Although people can probably be classified somewhat as sensitive and hyposensitive it seems to me that experience in judging the psychic make-up of a given example is of great importance in this determination. Experienced clinical judgment also often makes this observation concerning sensitivity almost without knowing why. Again we are up against the problem of what has been well named "substitution" symptoms, or something that takes the place of pain, which is a representative of pain. For example, sensations of cold or heat in the chest, or a sense of pressure, or a constriction in the throat. It has also been pointed out that in so-called hyposensitive individuals dyspnoea or only even a sensation of weakness or fatigue may entirely replace pain. Whereas in another individual perhaps more sensitive pain would have been the dominating symptom. Another great difficulty is the unusual radiation of pain of cardiac origin. The pathways have been rather clearly defined, but often pain may be contralateral, that is, on the right side instead of the left. Or there may be "inverse radiation" as in an example I have seen recently where pain radiated from the left elbow toward the heart. Often, also, pain may radiate from the abdomen toward the heart. This will be referred to later in this paper. Whether these peculiar radiations are always characteristic of hyposensitive individuals as Libman has pointed out I do not believe has been finally settled. It seems now a well observed fact that cardiac pain is rare in colored people. This has also been my experience in a clinic where a fairly large number of colored patients with cardiac diseases are observed. Anthropologists have also noted that the male Pueblo Indians are hyposensitive to pain. I would be interested to know whether in your ex-

perience here in Oklahoma with Indians if cardiac pain is relatively rare.

I would now like to briefly review with the aid of some slides a recent analysis of 100 cases where cardiac pain was the prominent symptom. An arbitrary clinical classification was first made: Hypertension twenty-two. Arteriosclerosis twenty-nine. Syphilis, two. Rheumatic, four. Thyroid, one. Coronary pathology, two. Angina pectoris, twenty-six. Obesity, one. Effort syndrome, four.

About half of all the patients gave a family history of cardiovascular disease. Pain was noted present, particularly in brain workers and people under the stresses and strains of modern life. Exertion was an exciting cause in all groups. The hypertensive group showed the highest mortality and the arteriosclerotic group the lowest mortality. In this group which we have called the angina pectoris group we are far from being entirely certain that in every case the pain was in reality of cardiac origin. However, fifty percent were improved and four were reported as being symptom free. The electrocardiographic findings study was noteworthy in that forty percent of the angina pectoris group showed no abnormality. In the electrocardiographic study of fatal cases serious changes were seen in all groups, with the exception of the angina pectoris group where two out of four showed abnormality of a grave nature. Eleven out of twenty fatal cases manifested depression of the T wave in lead 1 and 11.

To determine whether pain is of cardiac origin or not is often difficult. The most difficult differential point being whether the pain is referred from the abdomen or from the heart. So important is this differential diagnosis between abdominal and cardiac pain that a method of differentiating the two has been suggested by Levine and others. This is to inject one c.c. of epinephrine sub-cutaneously, with a subsequent rise of blood pressure and increase of pulse rate. The individual suffering from cardiac pain had a typical pain resulting from the injection, the control series did not. They suggest the use of this method in doubtful cases. We have had no experience with this test and only mention it because it may prove exceedingly useful in doubtful cases. I do not believe, however, it is entirely without danger.

On my service at Bellevue Hospital,

where we have every facility at hand for diagnosis, recently we sent a patient with coronary occlusion to the operating room with a diagnosis of ruptured peptic ulcer. The type of pain and the general picture of these two conditions being so similar that a differential diagnosis was not made.

Frequently it is also difficult to interpret the milder pain seen in gall bladder and gastric or duodenal disease. In my experience during the past few years in a clinic devoted to the study of peptic ulcer I have been impressed by the difficulty in differentiating between the pain of peptic ulcer and cardiac pain. A striking example of this is where a colleague of ours who had been under treatment for peptic ulcer for some time died suddenly while on a trip to Florida, of coronary thrombosis. Another confusing point of which we have seen several examples is where undoubtedly these two conditions were present in the same individual. The differential diagnosis from neurological conditions is also often exceedingly difficult. We have seen recently an example of a woman who could simulate attacks of cardiac pain so closely that she had been given a positive diagnosis of pain of cardiac origin by many physicians throughout the United States. A very intelligent neurologist in New York uncovered the fact that this patient was addicted to drugs and, fortunately, this resulted in a complete cure.

Many other examples of similar nature could be used to illustrate the difficulty in differential diagnosis. I agree with Dr. Harlow Brooks that all terms such as "pseudo" cardiac pain, or "functional" cardiac pain as far as possible should be abolished. In spite of the fact that we may occasionally create a neurosis it is better to consider pain that has the classical syndrome of cardiac origin as truly cardiac until proved otherwise.

I do not want to go into too much detail in regard to the drug treatment of cardiac pain except to tell you what has been our own experience in the management of this symptom complex. I am dealing here principally with the ambulatory form of pain and not that in which the possibility of coronary thrombosis may be a factor.

Our method in the use of nitroglycerin differs somewhat from its general usage. We use it in very small doses—1-225 grain—which we put up in conveniently small bottles. We have found it exceedingly difficult to teach people how to use nitro-

glycerine and a great deal of time has to be devoted to this phase of the treatment of pain. To eliminate the fear of the patient in the use of this drug I have occasionally had to take a dose myself in the office to prove its harmlessness. We also have found it very useful to teach people to use nitroglycerin before attempting to make some effort which had previously produced an attack of pain. It is very important to be sure of the freshness and strength of the nitroglycerin because I cannot imagine anything more pathetic than some person suffering from true cardiac pain trying to relieve himself with an inadequate remedy.

Next to nitroglycerin we have had a great deal of success with castor oil, particularly in the hypertensive group of patients suffering with cardiac pain. Some of these are given serial doses of castor oil, every other day for three doses and then they are taught to use it at least once a month. It has been our experience that they are very often free from pain for some time following the use of this remedy.

Another drug which seems to be of very definite benefit in the relief of cardiac pain in theobromine. We use the five grain compressed tablet (theobromine and sod. salicylate, Merck), with definite instructions that it ought to be taken after meals, suspended as fully as possible in a half a glass of water. The method of taking this is as important as the drug itself and it seems to us that many people who fail to get results with theobromine is due to the fact that they have not been instructed in the use of it. This drug may also produce great discomfort if taken in solid form.

One of the great difficulties in the treatment of this symptom is the question of prognosis. In all cases it is incumbent upon the doctor that he should not only consider his words but also his manner of expressing them. I am quoting here MacKenzie's own words concerning his methods of handling the prognosis question so difficult in the treatment of cardiac pain: "The idea is common that anything wrong with the heart carries with it the possibility of a sudden early death. As I have already pointed out, in dealing with cardiac pain the injudicious prognosis of a doctor may have calamitous results. When, therefore, a patient suffers from a pain which he or his doctor may consider to arise from the heart the possibility of cardiac pain occurs to both and the patient is of-

ten extremely depressed when he gets it into his head that he suffers from this trouble." MacKenzie's method was to explain to the individual in simple language that the changes in his heart were a little more advanced than the vascular changes in the rest of his body, which accounted for his symptoms. By explaining the patient's condition carefully and in a very simple fashion he removed the element of fear so often associated with mystery. We also have found that this is the best method of handling the prognosis question. In general we avoid as nearly as possible any prophecy of evil.

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121 East 60 Street.

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## FRACTURE CLINIC—DISCUSSION OF DELAYED AND NON-UNION

PAT FITE, M.D., F.A.C.S.  
MUSKOGEE

Since the advent of the machine age the number and variety of fractures has greatly increased and the fracture problems and the sequelae of handling them have increased in proportion. The essential teachings of the writers of a hundred years ago are still in vogue today, particularly those pertaining to splinting and the avoidance of gross motion at the site of fracture. At the present time the histological and pathological features of bone repair and the failure of bone repair are much better understood although much is yet left for solution.

When a fracture occurs the ends of the small vessels are broken across and a clot forms about the ends of the bone frag-

ments. Capillary buds go out from the bone and form the tissues about the bone into this clot until the entire distance is bridged across. Connective tissue forms about the capillary buds coincident with their formation. If for any reason the entire breach is not bridged by this granulation tissue non-union will develop and a condition analogous to that of chronic ulcer of the leg and chronic fistula takes place, *namely* the capillary buds do not bridge the gap and turn back on themselves in loops becoming terminal vessels. Up to this point the process of bone repair is essentially the same as tissue repair elsewhere in the body.

From this point on the process is peculiar to bones. If the ends of the bone are directly together, with practically no displacement, they can heal almost by first intention, but the process is the same in any case. Where the space is filled with granulation tissue circulation comes from the periosteum, marrow channel and the Haversian systems. The second step is the development of soft callus, next hard callus with the Haversian systems roughly at right angles to the long axis of the bone, and later the actual formation of bone in which the Haversian systems become parallel to those of the bone fragments. There is no easy way of distinguishing between these various steps of repair. About two-thirds of the circulation between the edges of the bones comes from the medullary canal. About one-third comes from the periosteum and the muscular tissue about the bone at the site of fracture, together with the Haversian systems. Up until the point of actual hard bone formation with the Haversian systems parallel to the long axis of the bones, the process of repair may be reversible and if too much motion is allowed non-union may result.

Some of the difficulties in delayed bone union come from too early mobility of the fracture. We often say that the average Colles fracture is solid in three weeks. Perhaps it is, but sometimes it is not solid for ten weeks. Consequently fractures should be individualized and due regard given to the rate of bone repair.

When a fracture does not unite it is for one of two reasons. It is either mechanical or chemical. Should a muscle or tendon be caught between the ends of the bone it is obvious the granulation tissue cannot force its way through this obstruction and non-union will result. Too much manipu-

lation the first two or three weeks in attempting better approximation, often leads to delayed or non-union. Too much manipulation at a late stage, even after hard callus has formed may bring about a reversal of the process and lead to non-union. Probably the most of our non-unions or delayed unions are the result of compound or comminuted fractures and the frequency of non and delayed unions at the present time is no doubt due to the fact that we are having so many automobile injuries and injuries from machinery of all types. In the consideration of the chemical reasons for non union, considerable work has been done in various medical centers in the past decade in the study of the biochemistry of bone repair. This has practically been done in the past five or six years. Campbell and Albee have been working on this problem for at least the last decade. Campbell believes in the onlay and Albee in the inlay graft. Both have been markedly successful in the handling of ununited fractures by his respective method. It has been understood for many years that under certain conditions of interference with the circulation actual bone is produced in the cortex of the kidney. Calcification is common in tuberculosis of the kidney. Recent experiments at the University of Chicago have shown that the transplantation of fascia into a defect of the bladder wall will bring about the production of bone and also that the transplantation of mucosa of the bladder into the abdominal wall will produce the same result and that transplantation of muscularis mucosa of the bladder will not produce this result. Also that if the bladder mucosa is transplanted for instance into the liver or spleen, bone formation does not take place. That the urine takes no part in the formation of bone in the bladder is shown by the fact if the ureters are brought through to the abdominal wall the same phenomenon occurs. The reason for all this is not understood.

Many of us have been led to believe for years that syphilis was a common cause of non union. We are constantly hearing it brought up in cases before the Industrial Commission and in the courts. Personally I have never seen a case of non union result from syphilis, and Dr. Henderson in a talk two years ago at Chicago stated that in the Mayo Clinic up to that time so far as he knew there had only been one case of non union that could actually be ascribed to syphilis.

It is believed by many that osteoblasts

occur either from migration at the ends of the bones or are formed from the newly made connective tissues by metaplasia and that due to the activity enzymes produced in these cells calcification is brought about. Other workers at the Presbyterian Hospital in New York fairly recently have sought to show from their experiments that this is not the case and further that the available source of calcium at the site of the fracture is due to tissue death and that an enzyme if formed is through the death of this tissue and is probably affected in no way by the blood calcium.

The most frequent fractures are fractures in the lower and middle third of the tibia, middle third of the humerus and the neck of the femur. In the anatomical consideration of these fractures it will be noted that these non unions occur in places where the bone is largely surrounded by tendons and there is poor lateral blood supply or the line of fracture, as in the case of the neck of the femur or the tarsal scaphoid, is bathed in synovial fluid. This last seems to interfere to some extent with the proper formation of callus.

The conclusion reached almost unanimously by present day workers in this field is that there is little if any systemic reason for non-union, that bone repair or the failure of bone repair at the site of fracture is purely a local phenomenon. It has been noted experimentally that the presence of an abnormal amount of amino acid resulting from tissue destruction is inimical to the normal processes of regeneration of bone.

In this same field of chemical causes of non union are the various infectious processes and this is often seen where there is a supervening osteomyelitis in a compound fracture. The use of foreign material in an infected field, particularly if the wound is closed, even if the infection is of a very low grade, is frequently the cause of defective repair. The beef bone plates and Lane plates are probably not in themselves responsible for non unions merely by their presence but often give a site for continuation of infection and may even be productive of poor contact between the bones. Experience has shown that the average man is not in position to use the Lane plate as he should be, probably because his working conditions are not sterile as is required. We say this because of the large number of plates that we have had to remove in the past eight years.

In closing, let me say that we learn a great deal by our errors and that there are certain things that we should all avoid. Do not do too much manipulation of fragments during the period of repair. Do not do plating in the presence of suspected or probable infection. Resort to closed reduction where possible. Do not assume that a fracture has united in a given length of time. Check it by X-ray and light manipulation. Do not mistake a delayed union as a non union too soon.

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FRACTURE CLINIC—OKLAHOMA CITY, MAY 12-13, 1931

S. R. CUNNINGHAM, M.D.  
OKLAHOMA CITY

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Dr. Pat Fite has just given a very interesting and instructive talk on non-union of fractures. I would like to emphasize that there is a great difference between non-union and delayed union of fractures.

I am quite sure that we see a great many fractures treated as non-union when in reality there is only a slow or delayed union and they should get spontaneous union.

I would also like to emphasize his statement, that one of the very common causes of non-union is the frequent or repeated manipulation of the acute fracture fragment. There has been a rapid increase in the number of fractures in the last few years. At the same time there has been a great change in the severity of fractures, that is, we are seeing far more real severe and complicated fractures than we did a few years back. There are several reasons for this—the rapid increase in the use of motor cars, modern heavy construction, cause more severe and more complicated fractures than we used to see.

I see that they are preparing here to continue with the moving picture demonstration and in the few minutes I have I particularly want to emphasize that most fractures of the long bones should be treated as closed fractures. Once in a great number of cases, it possibly is advisable to do an open replacement of the fragment ends but I never find any occasion to apply any non-absorbable material on fractured bones.

In our clinics here (and I am sure they do not differ from large clinics in other places) we find that a very fruitful source of non-union is the too often practiced open operation.

Open fractures commonly called "compound fractures" constitute about 15 percent of fractures of the femur and about 7 percent of fractures of the humerus and about 14 percent of fractures of the tibia. We find that about 11.85 percent of all fractures of bones with the shaft are open fractures.

When an open fracture is seen within a very few hours after injury the wound should be thoroughly trimmed and cleaned out and made a clean surgical wound and closed and treated as a closed fracture. This type of fracture is oftentimes best treated by skeletal traction.

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SECONDARY FACTORS IN SEASONAL HAY FEVER

HERBERT J. RINKEL, B.S., M.D.

AND  
RAY M. BALYEAT, M.A., M.D., F.A.C.P.  
Lecturer on Diseases Due to Allergy, University  
of Oklahoma Medical School  
OKLAHOMA CITY

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The etiology of seasonal hay fever is well established. The role of secondary factors, however, is not so well understood so that many have difficulty in evaluating the importance of the various factors that play a part in the production of seasonal hay fever symptoms. One is not justified in stating that a patient failed to receive benefit from seasonal hay fever treatment unless that statement also specifies the consideration given not only to the primary pollen factor or factors but to the handling of secondary factors. As a means of trying to determine the relative importance of various secondary factors we have made a detailed analysis of 201 seasonal hay fever patients, all of whom presented themselves for the first time or were completely rechecked both by the scratch and the intradermal method during the season of 1930. They have been chosen in part from those presenting themselves because of hay fever symptoms during the tree season, in part from those with symptoms in the grass season, and also a series whose symptoms occur only during the thistle and pigweed, or the ragweed, season.

POLLEN THE SOLE FACTOR

In the series of cases studied only one patient was found sensitive to pollen only. Logically it ought to be this way. That is, a patient born with the ability to become sensitive to pollen ought to become sensitive to other substances, namely, animal

dander, food or dusts, and apparently they do. The fact that one patient was found sensitive to pollen only does not mean that pollen was not the sole contributing cause of the hay fever symptoms in others who were definitely sensitive to substances besides pollen. For example, we found a few cases who were very sensitive to pollen and slightly sensitive to animal dander and to foods. In all probability the moderate degree of sensitivity to foods and animal dander in such cases plays but little if any part in the production of their symptoms. As will be shown later the majority of cases gave marked reactions to other inhalants or foods.

#### MULTIPLE POLLEN SENSITIVITY

Multiple pollen sensitivity is very much the rule. Of the 201 cases studied ragweed was considered the primary pollen factor in 123, or 50.9 per cent, while the pigweeds and thistle were considered prominent in 53 and 34 patients respectively. It was interesting to note that grass could be considered the primary factor in only 12 cases. Oak was very important in 16 cases, elm in 4, maple in 4, and cottonwood in 9.

In determining the primary pollen factors one must take into consideration the date of onset of symptoms and the positive test findings. This is likewise very important in deciding the possibility of secondary pollen factors. We find in our study, for example, many patients who show a marked reaction to grass or the pigweeds, but who do not have symptoms until the ragweed season. It is likewise true that many of our thistle patients show a definite positive skin reaction to a number of the grasses but they manifest no clinical symptoms until the thistle is pollinating. We believe that in these cases the pollen from the grass or the pigweeds, whichever it may be, or both, may not irritate sufficiently a normal mucous membrane of the nose to produce symptoms, but after the ragweed begins to pollinate and the nose is made markedly irritable then the grasses or pigweeds will irritate the abnormal membrane and then become very definite secondary pollen factors. We consider in this series grass a definite secondary pollen factor in 115, pigweeds in 83, ragweed in 51, thistle in 32, and trees in 8. Our observation leads us to believe without question that the degree of contact has much to do with determining the pollens to which patients will become sensitive. For example, a pa-

tient who lives in the Russian thistle district, who is born with the ability to become sensitive, usually becomes sensitive to Russian thistle; likewise those who live in the Johnson grass district have a tendency to become sensitive to Johnson grass, etc.

Probably the most interesting clinical phase of the multiple pollen factors are the patients who have, for instance, ragweed seasonal hay fever but who fail to obtain benefit unless the secondary pollen factors are cared for by pollen therapy. Most patients who come into the clinic, who have marked hay fever symptoms during the Fall of the year, will tell us that their symptoms appear from about August 15th until frost, but on close questioning we will find that they may have mild hay fever symptoms in June, July or the early part of August, which is evidence that the grasses, pigweeds or other pollen to which they are sensitive, that act as secondary factors, are actually causing some symptoms, but they are mild and the patient pays but little attention to them. We often elicit on close questioning a history that these same patients suffer rather severely from what they believe is an acute infectious rhinitis in February, March or April each year. On testing we find many who give such histories markedly sensitive to elm, cottonwood or oak. Their symptoms could easily be due, and are in many cases, to the tree pollen.

#### THE DOUBLE ROLE PLAYED BY THE COTTONWOOD TREE IN SEASONAL HAY FEVER

Throughout the western half of the territory spoken of as the Great Southwest the pollen from the male cottonwood tree plays an important part as a primary factor in the cause of seasonal hay fever. In the state of Oklahoma there are two species of the cottonwood tree, namely, *Populus deltoides* and *Populus virginiana*, but in Colorado, according to Waring<sup>1</sup>, there are nine. In the western half of Oklahoma, Kansas, New Mexico, and in the state of Colorado, the cottonwood tree is used extensively as a shade tree by the farmer, and in towns and villages. It grows extensively along streams. Its use as a shade tree brings it in close contact with the possible sufferers from hay fever.

The tree is dioecious in type, that is, the female tree is a distinct one from the male. The pollen of course is produced by the male tree. The average date of onset of pollination is April 3rd. It is a prolific



FIGURE 1.  
Cottonwood (*Populus deltoides*)

The cottonwood tree (upper left view) grows along streams and is used extensively for shade in western Kansas, Oklahoma, New Mexico and Colorado. The staminate flower (lower right) is very brilliantly colored. It produces enormous quantities of dry pollen, which is frequently carried many miles by the wind. The pistillate flower (lower left) is inconspicuous and after fertilization appears in the form of pods (upper right) from which is liberated the cotton that is so disturbing to housekeepers.

The pollen from the cottonwood tree is a common etiologic factor of spring hay fever beginning the first of April. Patients are not specifically sensitized to the cotton liberated by the female tree but it acts as a nonspecific factor, frequently accentuating the symptoms of those who suffer from hay fever during the heavy grass season (month of May).

pollinator and the pollen is small, which allows it to be carried into the air for several miles. The period over which the tree pollinates is about three weeks. The cotton produced by the female tree begins to blow about the 1st of May. Attached to the seed are a large number of small cotton threads, which makes it very fluffy, so that the wind can distribute it over large areas with ease. It has been reported by Waring<sup>1</sup> that occasionally a patient will become sensitive to the cotton. However, the cotton, which is produced by the

female tree and blows extensively, usually acts as an irritant to those who suffer from seasonal hay fever, in a nonspecific way. The fine lint will irritate the mucous membrane of the nose that has been made irritable from the grasses that are blooming at the same time, just the same as will fine dust and lint from books and clothing.

It is interesting to note that in the cities and villages there are about twelve male cottonwood trees to one female. This is largely due to the fact that housekeep-



PLATE I. THE SOURCE AND USE OF ORRIS ROOT

Iris plants (*upper view*), the rhizome of which (*lower left*) is dried and ground up to produce orris root. Powdered orris root is used in highly scented cosmetics (*lower right*) as a perfume fixative.



ers soon find that the cotton produced by the female tree is very annoying, and naturally the trees are cut down. In other words, the majority of the cottonwood trees in the towns and cities are hay fever producing ones. Along the streams we find about an equal number of male and female trees.

#### ORRIS ROOT AS A SECONDARY FACTOR

In this series of cases 72 patients were found sensitive to orris root by either the scratch or intradermal method of testing. This number may seem high but when we consider the prevalence of orris root it seems logical. The average adult is in contact with orris root throughout the business day and in his home. Naturally one would expect sensitivity more among the city dwellers because of their increased social contact, and this is the rule, but in a number of instances we have found steel workers, farmers and brakemen sensitive to it. The majority of these patients may be controlled by the strict elimination of orris root in their own home and avoidance in the hay fever season of contact with orris root in public places, such as drug stores, perfume counters, barber shops, etc. A great number need desensitization to orris root as well as to the primary pollen. Elimination, of course, should first be tried, and then if necessary treatment may be instituted.

It is not uncommon to have the history of a patient who is having perfect results with seasonal hay fever treatment, who gets in difficulty on going to a party. One such patient stated that approximately 10 minutes after entering the crowd she began to have symptoms and these symptoms did not cease when she went home but persisted for three or four days. Here we have a good illustration of prolonged symptoms that may be induced by short contact. Males may have as much difficulty from orris root as females.

#### INCIDENTAL PROTEINS COMPLICATING SEASONAL HAY FEVER

By incidental proteins we refer to such products as tobacco, flaxseed, pyrethrum and other proteins that cannot be classified either as a food, animal dander, etc. In our series of cases pyrethrum is the most common incidental protein, being positive in 31 cases, while flaxseed was found to be a factor in 7, and tobacco played a role in 4. Pyrethrum is the basic ingredient in all fly powders and insecticides and is produced from *chrysanthemum*

(*Chrysanthemum coccineum*). As a rule patients who are sensitive to the composite group ought to have difficulty with pyrethrum. Its season of greatest use corresponds to the various pollen seasons. It is commonly applied by closing the windows of the room and saturating the air with the powder. One can readily see that where it has been used in this manner that a ragweed sensitive patient will become sensitive, or if sensitive, have difficulty, because of its presence. Some rugs are saturated at the factory with pyrethrum to moth-proof them. There is no need of desensitization in cases sensitive to pyrethrum. Strict elimination is the satisfactory procedure.

Flaxseed is used in beauty parlors, in certain breakfast foods and chicken feeds, and its classical use is that of a poultice. One naturally concludes then that the most likely contact will be in the druggist, the chicken grower, the cosmetic specialist, and among those who use cereals containing flaxseed. Routine testing for flaxseed is in order. If sensitivity exists to this protein it is usually quite evident and strict elimination will take care of symptoms.

Tobacco occupies a minor role and is chiefly noted among those who do not smoke but who occasionally come in contact with tobacco fumes.

#### THE IMPORTANCE OF ANIMAL DANDER

One hundred and ninety of these patients showed a sensitivity to various animal danders. This is a greater incidence of positive reactions, considered as a group, than any of the other etiological groups. This fact is of utmost importance. Time and again we have seen seasonal hay fever patients who were having difficulty in spite of treatment, whose symptoms clear up when they have eliminated contact with the various animal danders. For purpose of illustration I shall cite two cases.

Case 1. Mrs. G. M. R., age 34, came to the Clinic because of hay fever from August 15 until frost. In the course of testing we found her extremely sensitive to duck, goose and chicken feathers, and dog hair.

Treatment was instituted and she returned to her home physician. About 3 weeks after she had been on treatment she made a trip to the wholesale house as a purchaser of fur trimmed winter coats. She was free of symptoms on entering the wholesale house. In about 10 minutes she began to have difficulty and it was practically impossible for her to complete her purchases, for, as she stated, "my eyes watered so I could not study the fabrics or the design." In two or three days the symptoms had cleared.

*Discussion.* This experience stimulated the patient to determine whether the pet dog which had been removed from the home could be a cause of symptoms. Here again she found that contact produced severe symptoms. She reported to us that when she eliminated the dog and other various animal danders she continued through the season with exceptionally good results.

Case 2. Our second patient, Mr. J. M. S., age 42, had suffered from seasonal hay fever for a number of years. On the opening day of the ragweed season he was attempting to do some work about his garage and by 9 o'clock in the morning his symptoms were so severe he was unable to continue. On testing this man we failed to find a ragweed sensitivity by the scratch test, and the intradermal method was questionable. However, he was a six plus to goose feathers, and on removal of the feathers his symptoms cleared up. Within 3 days there were no symptoms referable to hay fever and he continued through the season with perfect results.

*Discussion.* The importance of the animal danders in these two cases is no doubt greater than in the average case but illustrates the need for thorough testing and removal of animal danders to which the patient is sensitive.

#### ROLE OF FOOD AS A SECONDARY FACTOR

Eyermann<sup>2</sup> called attention last year to the importance of food in seasonal hay fever patients. For the past several years we have been testing patients with foods and have found the food factor of such importance that all seasonal hay fever patients are now being tested not only by the scratch method but by the intradermal. On analyzing these findings we find that 164 were sensitive to various vegetables, while fruits were positive in 133 patients. Cereals were found to be a factor in 90, fish played a role in 75, nuts in 68, condiments in 53, and meats in 49. Wheat showed a positive reaction in 95 patients, eggs in 57 and milk in 34.

When we consider this group of patients as a whole we find that only 3 of the 201 patients failed to react to some of the food group. Eyermann<sup>2</sup> has shown very definitely how patients who have been desensitized without good results have been able to pass through the season free of symptoms when the food factors have been thoroughly controlled.

Case 3. We have a patient, W. T. R., age 24, whom we were unable to build because of sensitivity to wheat. On strict elimination of wheat from the diet we were not only able to build her to a high dose of the pollen extract but we were also able to free her of her hay fever symptoms.

Case 4. Another patient, H. McC., age 30, reported at the end of the season that on an occasion or two he thought that diet was unnecessarily strict and he would partake of foods to which he had been found sensitive. On each occasion he suffered hay fever symptoms for a day or two. In his case this was due to navy beans, water-melon and celery.

*Discussion.* It will be noted that the meats, fish and nuts are not a factor as often as are vegetables and fruits. The protein content is less among the vegetables and fruits and therefore the elimination of foods on the protein basis alone is not apt to secure results comparable to those where the diet is arranged after testing with all the foods.

#### SUMMARY

When we consider the foregoing findings in a large group of seasonal hay fever patients it is obvious that while the symptoms of seasonal hay fever may be referable to some of the wind-borne pollinated plants, it is not difficult to see that many factors besides the specific pollen must be considered in the treatment of these cases. From time to time reports and figures are given on the results of seasonal hay fever treatment. It is obvious that if these figures are obtained from patients who have not been tested to all of the pollen, all of the animal danders, incidental proteins, orris root, and foods, that the patient has been treated without a full determination of the etiology. In other words, the patient is being treated on an empirical basis rather than on a specific one.

The progress being made in the treatment and handling of seasonal hay fever patients has been so rapid that a procedure which was considered correct a year or two ago may be no longer in good form.

We would emphatically state that comparisons of the benefit cannot and should not be considered unless all of the specific etiologic factors have been considered. The assumption that patients who have hay fever in the ragweed season due to ragweed only is unjustified. There is little question but what the majority of these patients are sensitive to ragweed, but there are many other causes which must be considered and eliminated. The role of animal danders, orris root and incidental proteins is fairly well understood, but the importance of food has not received due attention. We believe on the basis of these findings and the results in treatment of these patients that a strict and thorough elimination of the various foods to which the patient is sensitive are of equal im-

portance with other treatment. We also know that where the specific foods have been eliminated that systemic reactions and difficulty in building are more apt to be avoided.

#### CONCLUSIONS

1. Pollen as a sole cause of seasonal hay fever, as demonstrated by scratch and intradermal testing, is exceedingly rare, occurring in only one patient.

2. Multiple pollen sensitivity is the rule, and in our group the most common primary pollen was ragweed; in the secondary pollen group grass was the most common.

3. Orris root is of secondary importance in at least 30 per cent of the patients, and desensitization must be considered in at least 10 per cent of all patients.

4. Pyrethrum is of the most importance as an incidental protein complicating seasonal hay fever and is found of course among those sensitive to the Composite group. Flaxseed and tobacco play a minor role.

5. Animal danders have been found positive in a greater number of patients than any other etiologic group and their elimination must be considered in detail.

6. Positive reactions from foods are second only to the animal danders. When we classify the various food groups, vegetables and fruits appear to be of the greatest importance.

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#### MEDICAL ASPECTS OF GASTRO-DUODENAL ULCER

ARTHUR W. WHITE, A.M., M.D., F.A.C.P.  
OKLAHOMA CITY

The form of the subject "Medical Aspects of Gastro-Duodenal Ulcer" indicates a treatise on treatment rather than a discussion of principles.

With the enormous amount of literature on this subject for the past many years, with many conflicting articles trying to evaluate the various types of therapy, some attempting to prove the wondrous merits or the hideous mutilations and defects of

some special operative procedure, or some selected diet or some drug, others trying to show that certain bacterial, mental, neurogenic factors, or circulatory disturbances are the sole etiological factors of the disease, others insisting that in the X-ray lies the sole hope of correct diagnosis, others that it is often valueless, others that certain special tests are of absolute necessity—one can not help feeling the essential and inherent difficulties of such a discussion.

It seems essential, before taking up the question of treatment, to refer briefly to some of the questions in the field of etiology. The generally accepted explanation is, that the immediate cause of the condition is the digestion of a certain portion of the mucosa by the proteolytic enzyme of the stomach, or by the corroding effect of the hydrochloric acid, but as to the contributing causes, the views are many.

Disturbances of the circulation and consequent lowering of the vitality, as first suggested by Virchow, seem to be a plausible factor in many cases, but whether this is due to thrombi or to emboli, constriction of the blood vessels, or strain and interference of the circulation to the lesser curvature of the stomach, the pyloric portion and duodenum, on account of the peculiar distribution of the blood vessels and the consequent interference by position and gravity, it is often impossible to say.

Certain experimental work in this field has shown that ulcers can be produced artificially by the production of a thrombus or local destruction of tissue as by silver nitrate, but these ulcers heal spontaneously very rapidly, although the healing may be greatly retarded by the administration of hydrochloric acid.

Many still believe with Eppinger, that a marked instability of the sympathetic and vagus systems is the underlying cause.

Dr. Harvey Cushing has recently pointed out that ulcer of the stomach is sometimes found with tumors or disturbances of the diencephalon or "tween brain."

Disturbances in the motor sphere, functional or organic abnormalities, and peculiarities in the form of the stomach as ptosis or congenital malformations: all of these have been regarded as factors of importance.

That the essential role is played by bacteria has been insisted on by many, some considering them as specific, others that they play a secondary role, thereby inhibit-

healing and bring about a chronicity. As regards the former, many believe with Rosenow, that streptococcus of specific strain is essential to the development of an ulcer. It is well to remember in connection with this, that the gastric veins are freely open to any substance coming from the spleen and that this, as Gibson insists, may give rise to infected emboli, and further, that "the anatomical distribution of blood supply of the gastric mucosa is a prime factor in determining not only the location but the cause of ulcer" as Hoffman and Nather have shown.

As regards symptoms, again we see a great variance and nothing that is wholly dependable in all cases. True, a certain syndrome, *viz.*, that of chemical distress and periodicity, is considered characteristic, but in many cases this is absent. Some present no symptoms until hemorrhage or perforation occurs, others present certain outstanding symptoms which are unique as for example, diarrhea.

Hence, the reason for uncertainty and dissatisfaction giving rise to many varied opinions, is not hard to find—for treatment, without knowing the cause, without being sure the symptoms are characteristic and without being certain beyond a reasonable doubt of the diagnosis, must of necessity be unsatisfactory when considered in the abstract.

What then, can be expected of any treatment?

Obviously any treatment to be considered must give promise of eradication of the ulcer only by furnishing such measures as promote the healing of the ulcer and by removing its complications or hindrances without regard to some possible hidden indirect cause.

Then the question so often contemplated in improper form "should peptic ulcer be treated medically or surgically" is more easily answered when presented thus—"should this particular ulcer, with the recognizable condition and complications that accompany it, be treated medically or surgically?"

This cannot be answered without a thorough understanding of the conditions present and the balancing of one type of treatment against the other, with reference to risk to life, discomfort, time, after effects on the patient, and the special characteristics of the case.

For many years two essential factors

have been recognized in the chronicity of peptic ulcer:

1. The destruction of an area of mucosa in the stomach or duodenum.
2. The destructive action of the gastric juice on such necrotic areas as exist.

Well nourished and otherwise undamaged tissue resists the action of the gastric juice, whether this tissue is protected by normal covering or not. Hence, the explanation for the rapid healing of experimental ulcers.

Ulcers that have occurred without symptoms and that have healed spontaneously are numerous. The adjacent tissue to and covering the surfaces of such ulcers, has sufficient vitality to resist the action of the peptic juice. Abundant evidence is at hand to demonstrate that tissue, lowered in vitality from any cause, is readily susceptible to the corrosive action of the gastric juice in proportion to the diminution of the vitality of the exposed tissue.

The digestive or corroding action of the gastric juice is due to the solvent action of the pepsin in the presence of free hydrochloric acid. As a destructive agent then, gastric juice is absolutely inert in the absence of free hydrochloric acid and further, pepsin is not activated by the presence of combined acid, acid salts, or organic acids.

It is obvious that when the vitality of tissue is lowered sufficiently to render it susceptible to gastric juice digestion, the greatest efficiency of treatment cannot be attained without bringing about an absolute constant neutralization of the hydrochloric acid.

Time does not permit the discussion in any great detail of the medical management—suffice it to say that frequent feeding of bland food, which in case of any degree of obstruction should be liquid, preferably milk, with the administration of sufficient alkali, as sodium bicarb, bismuth salts, mag-oxide, calcium salts, etc., between feedings, to insure complete correction during the waking hours, with as nearly absolute and continuous rest as can be obtained, is the basic plan for procedure. The stomach should be aspirated and the contents examined sufficiently often to determine for a surety, that the alkalies are administered in sufficiently large doses to accomplish the desired change,

and yet not sufficiently strong to over correct the secretions, as to wholly interfere with digestion or render the condition known as alkalosis possible. When the free hydrochloric acid is controlled, the greatest hindrance to the healing of the ulcer, that is amenable to medical or surgical control, is removed. The conditions for the healing of the ulcer are rendered as ideal as possible in the light of our accumulated knowledge. But it is important enough for emphasis, at this point, that a reduction of free hydrochloric acidity, short of its complete neutralization, does not in the least diminish the peptic activity of the gastric juice.

Sippy first demonstrated in a large series of cases, that as a result of the constant protection of the ulcer from digestive juice contact, one of the most common and serious complications of peptic ulcer, *namely* pyloric obstruction, will yield rapidly in a large percentage of cases.

In 80%—85% of all cases of pyloric obstruction, the obstruction is overcome within three weeks to such an extent that a full meal will pass thru the pylorus within the seven hours allotted time. In these cases the obstruction is due to muscle spasm, acute swelling, and occasionally, to a local peritonitis. In the remaining cases, a cicatrix at the pyloric ring produces such narrowing that these yield very slowly, and in at least fifty percent, surgical help is required.

In the case of gastroenterostomy, as indicated in these cases, *i. e.*, for the relief of pyloric obstruction, greater efficiency may be secured and the end results improved if the pylorus is not closed, and there be included in the after treatment of the case, an accurate neutralization of the hydrochloric acid.

The higher the grade of obstruction, the greater the help from operation, in that the contact of the irritant contained in the gastric juice is reduced in time, although this in itself does not insure healing, as there has been simply a conversion from an obstruction to a non-obstructive type of ulcer.

Another distressing complication is hemorrhage, which however, produces a low mortality. It is estimated that not over 15% of hemorrhage cases result fatally. Death resulting from a single hemorrhage occurs before any treatment can be instituted.

Unquestionably in repeated hemorrhages, the peptic destruction of the thrombus, before it has become vitalized, is an important factor, so that the rational treatment following hemorrhage is the rapid and constant neutralization of the hydrochloric acid to protect the walls of the stomach from the rapid disintegrating action of the gastric juice. This, with morphine and absolute rest, is usually sufficient. Hourly feedings of small quantities of milk or strained gruel can usually be instituted within 36 to 48 hours after the cessation of the hemorrhage. A low blood volume favors control of the hemorrhage so that intravenous injections of large volumes of fluids is not indicated. The results of surgical intervention are so discouraging that it is extremely rare that surgical interference is advisable.

There are other complications, as perforation, perigastric abscess, suspected developing carcinoma, which are strictly surgical as soon as diagnosed, but it should be borne in mind that the follow-up treatment should include an active corrective management, to insure the best results. It is certain, however, that a period of haphazard careless treatment with its consequent failure should not constitute an argument for precipitate surgery. Sir Berkely Moynihan states: "It is at least arguable that the necessity for surgical relief in many cases is due to a too perfunctory trial of medical treatment. It is best to have no half way measures."

Last year Ralph C. Brown made an extensive survey of cases treated by Sippy and Brown for a period prior to 1927. Questionnaires were sent out to 1900 patients with 1224 replies received. From this study he reports good results in 66% of cases, fair results in 10%, and poor medical result in 20%. Hence, it may be concluded, that approximately 20% of ulcer cases admitted to hospitals require surgical treatment. Brown concluded his report with the statement: "Good cooperation between internist and surgeon is of the utmost value and rarely should a patient be placed in the surgical category until after a period of preliminary medical treatment."

The follow-up treatment of all cases, complicated or uncomplicated, whether

treated during the active stage, medically or surgically, is of utmost importance, as the conditions which produced the original ulcer may again produce the condition, so that neutralization should be continued over a long period. The length of time required for a peptic ulcer to heal, depends on the size, the amount of induration, and the accuracy shown in eliminating unfavorable conditions and in carrying out the management. No drug or operation directly heals the ulcer. All that medical or surgical treatment can do to promote healing is to eradicate those conditions which prevent healing.

No single procedure can immediately bring about the desired results; it requires patience, careful continuous observation over a long period of time as it is not sufficient to cure the ulcer, but to reconstruct the functional habit of the stomach in order to prevent a recurrence of the ulcer. Consequently, any surgical procedure must, by the very nature of things, be an adjunct to the routine management and cannot in itself be depended upon to bring about a positive prompt cure, and is to be considered in selected cases only. The surgical interference should be determined on the merits of the case (the particular type of operation should be left to the judgment of the surgeon, who should by all means be of wide experience and developed judgment). The after care should be in the hands of one thoroughly conversant with detailed requirements essential in maintaining an absolute chemical correction.

In conclusion—the last word has not been said as regards to cause or conditions affecting the healing process but whatever associated treatment, medical or surgical, as determined by the exigencies of a given case, may be resorted to, the first principle in treatment is the neutralization of the hydrochloric acid for by this:

Pain is relieved.

Obstruction most definitely influenced.

Recurrence of hemorrhage prevented.

Penetrating types of ulcer rapidly influenced and

The healing of the ulcer occurs.

## GASTRO-DUODENAL ULCER, SURGICAL ASPECTS\*

P. P. NESBITT, M.D., F.A.C.S.  
TULSA

A chronic gastro-duodenal ulcer, known also as a peptic ulcer, is a very serious condition. It is serious not only to the victim harboring it, but to his family and to his medical attendant. To effect a cure requires full cooperation of the sufferer and his family and intelligent and long continued supervision by the doctor.

Medical and dietetic treatment is the sheet anchor in curing this condition. Most surgeons do not regard surgery as a cureall for gastro-duodenal ulcers, but as an aid to the other method in certain cases when the other method is unable to effect a cure alone. In order to effect a cure, all cases must have dietetic care, and most of them require medical treatment also, after operation.

The medical profession is not fully agreed on all the causes that may produce or prevent the healing of chronic gastro-duodenal ulcers. Three factors accepted by practically all observers are infection, pylorospasm, and gastric hyperacidity.

These may be caused by conditions in the body some distance from the site of the ulcers.

In almost all peptic ulcers removed by operation a streptococcus infection can be demonstrated. It has not been proved whether this infection is brought by the blood stream from foci of infection in other parts of the body, or enters directly from the contents of the stomach. In infections of the mouth and throat virulent bacteria are being swallowed almost constantly. To prevent this the patient should have proper dental treatment and if indicated, the tonsils should be removed.

By pylorospasm is meant a spasmodic contraction of the muscles of the pylorus which guards the opening from the lower end of the stomach into the duodenum, which is the upper segment of the intestine. This interferes with, or in some instances, prevents the emptying of the stomach into the intestine. This causes violent contractions of the muscular coats of the stomach in its effort to empty itself and the contents are forced through the nar-

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rowed opening with considerable force striking the walls of the first part of the duodenum.

One of the causes of the increased secretion of hydrochloric acid by the stomach is the increased muscular activity caused by pylorospasm and the hyperacidity in turn aggravates the pylorospasm.

Most peptic ulcers are found in the first portion of the duodenum and on the lesser curvature of the stomach. In these locations the mucous membrane is more closely adherent to the muscular coats than in other parts of the alimentary tract so it is more liable to injury by the forcible muscular contractions, which also interferes with its blood supply more than other parts.

So it is readily understood how pylorospasm aids in the formation and prevents healing of ulcers in these locations. In addition to the local causes of pylorospasm and gastric hyperacidity, we must consider that they are often caused by diseases of the appendix, the gall bladder, the intestines, and in the female, of the pelvic organs.

In order that medical treatment have a fair show to cure peptic ulcer, all these conditions mentioned as the origin of infection or as to the cause of pylorospasm and hyperacidity should be eliminated and to do so will require surgery in at least a part of them. A very considerable percentage of medical failures are due to the persistence of one or more of these conditions.

Records of several of the larger clinics of this country show that approximately 70% of peptic ulcers are cured by medical treatment. With individual attention by the doctor and with full and intelligent co-operation on the part of the patient, this percentage would probably be somewhat larger. However this may be, in about 30% of all cases of peptic ulcer conditions develop that are indications for surgical treatment. These are (1) acute perforation, (2) unrelievable obstruction, (3) repeated massive hemorrhages, (4) reasonable suspicion of malignancy, (5) failure of medical treatment, (6) inability to take necessary medical treatment, (7) refusal to follow medical treatment.

In acute perforation, that is, where the ulcer perforates into the abdominal cavity with escape of contents of the stomach or duodenum, there is no question but that

this is an indication for immediate surgery and the chances for the victim of this catastrophe surviving depends very largely on how soon operation is performed. Most cases operated within three or four hours after perforation will recover. After this his chances fade rapidly as time passes, and if not operated within the first twenty-four hours about the only chance is that the leakage has been so slow that it has been confined in a limited space by the formation of adhesions.

Obstructions in the stomach due to so-called hour glass contraction or at the pyloris occur rather frequently, but about half of them are caused by inflammation, edematous swelling, or muscular contractions and are relievable by rest and medical treatment. The others are due to contraction of scar tissue and require surgery for relief.

Massive hemorrhage from a peptic ulcer is a frequent complication. One or two hemorrhages are not indications for surgery where proper medical treatment can be carried out, but if as many as six or seven occur while under treatment it is generally agreed that it is time to resort to operation unless there are strong contraindications.

Reasonable suspicion of malignancy is a positive indication for surgery as soon as the patient's condition will permit. For the only hope of a cure, if malignant, lies in the early recognition and the removal of the growth before it has spread too far. Even where it has progressed to a stage where it cannot be removed it is often possible to prolong life and lessen suffering by appropriate surgical measures.

A certain percent of sufferers from peptic ulcers fail to obtain relief from medical treatment even though they co-operate fully. If their ulcers are not healed after a year they should be classed as medical failures and should be treated surgically.

Some patients are unable to take enough alkalies to neutralize the acid of the stomach over long enough periods of time to allow the ulcers to heal without developing the condition of alkalosis. This is especially found in sufferers from certain kidney diseases in whom not only alkalosis develops but the kidney condition is made worse. It is possible that some of these might obtain relief by methods of medical treatment other than the administration of alkalinizing agents, but for most

of them their best chance of relief lies in surgery with proper diet afterward.

Others, due to their station in life, their occupation, or environment find it impossible to follow the long course of diet and drugs necessary to give a fair chance for a cure by medical treatment. These people should be treated surgically, followed by the best dietetic and medical treatment that is possible under the circumstances.

Then there is a large class of people having peptic ulcers who will not try medical treatment, or who will not follow it closely enough or for sufficient length of time to give reasonable hopes of lasting benefits. This may be due to weak will power, ignorance, or plain obstinacy. These as a class are not very desirable as surgical patients and many surgical failures occur among them. However, surgery is about the only chance they have for relief.

The surgical treatment of gastro-duodenal ulcers requires not only a high degree of skill in performing the operations, but also the very best of surgical judgment in determining what should be done in each case, and a thorough knowledge of the physiology of the organs involved, to the end that after operation they can carry on their functions in as nearly a normal way as is possible under the existing conditions. The consensus of opinion among surgeons at present is to do enough to cure the condition, at the same time avoiding the more extensive and complicated operations with their necessarily higher rate of mortality where simpler measures will suffice.

A great number of operations have been used in the treatment of peptic ulcers. We will consider some of these.

*Closure of perforated ulcers.* The most frequent site of perforation is the anterior wall of the first part of the duodenum. In this location it is only necessary to close with an infolding double line of suture. This may be reinforced by suturing a piece of omentum over the site of closure. In addition it may be advisable to do a gastro-enterostomy if the lumen of the intestine has been narrowed too much by the closure. In perforations of ulcers of the stomach, if the ulcer is large the entire ulcer should be excised; if small, the destruction of the base with a cautery may be all that is necessary. The opening is closed and a gastro-enterostomy performed.

Gastro-enterostomy, the making of an artificial opening from the stomach into the intestine, is the operation used more frequently than any other in the treatment of peptic ulcers. The opening in the stomach may be in the posterior or anterior wall, and anywhere along the length of the stomach. Unless for some special indication it is usually placed on the posterior wall a short distance below the midline of the stomach. The opening into the small intestine is usually in the upper portion of the jejunum, but sometimes the connection is made between the second part of the duodenum and the lower end of the stomach.

Plastic operations about the pylorus have for their object the relief of pylorospasm and enlargement of the opening. One method is to cut through the pyloric muscle without opening the mucous membrane, closing the opening in such a way as to prevent the severed ends of the muscle from uniting. Another is to extend an incision through the entire wall of the lower border of the pylorus extending on the one side into the stomach and on the other into the duodenum and uniting the cut edges so as to enlarge the opening.

Operations involving removal of tissues are listed as, excisions of ulcers, pylorectomy, partial gastrectomy, subtotal gastrectomy and total gastrectomy. We have already considered excision of ulcers. By pylorectomy is meant removal of the pyloris with a variable part of the first portion of the duodenum and a part or all of the pyloric antrum of the stomach. The term partial gastrectomy is used for operations on the lower part of the stomach where not more than half the stomach is removed. By subtotal gastrectomy is meant operations removing more than half but not the entire stomach. When the entire stomach is removed, or all except just enough to make a connection with the intestine, the operation is known as a total gastrectomy. This is used only in very rare occasions. In all of these resections the cut end of the duodenum is securely closed. The opening of the upper part of the stomach is either partly closed and an end to side connection made with the upper intestine, or it is entirely closed and a posterior gastroenterostomy done. As almost all gastric ulcers occur in the lower end of the stomach and this is the part secreting hydrochloric acid, the resection operations remove the ulcer bearing portion and also reduce the acidity.

In another operation on the stomach known as partial gastric occlusion, the stomach is cut entirely through above the ulcers. The upper part is treated the same as in the resections. The opening of the lower part is entirely closed. This operation is useful where due to adhesions or other complications it is impossible or impractical to remove gastric ulcers or bleeding ulcers of the duodenum. It is also useful to give temporary relief and prolong life in carcinoma of the pyloric end of the stomach that has progressed so far that complete removal is impossible.

Jejunostomy is an operation that is used very rarely. It consists of opening the abdomen and making an opening into the upper intestine through which nourishment can be introduced without passing through the stomach. By this means the stomach is put at rest and ulcers will sometimes heal or conditions improve so that other operative methods for their cure may be employed.

Now let us consider which of these operations are indicated in the conditions calling for surgical treatment.

*In acute perforation of duodenal ulcers.* When the base of a duodenal ulcer is destroyed by perforation there is a very strong tendency for the ulcer to heal. So simple closure is all that is necessary unless the closure reduces the lumen of the intestine enough to cause partial obstruction. In such cases it is necessary to do a gastro-enterostomy also.

Perforating ulcers of the stomach are treated by destruction of the ulcer, or by cutting them out, or by one of the resections, together with a gastro-enterostomy.

Right here we may state that in gastric ulcers treatment of the ulcer alone or gastro-enterostomy alone do not give good enough results to justify their use. In other words the ulcers should be destroyed or removed and a gastro-enterostomy should be done also.

In obstruction due to scar tissue contractions, gastro-enterostomy is the operation of choice and in almost every instance gives satisfactory results.

In repeated massive hemorrhages, the bleeding ulcer should be removed completely if possible and a gastro-enterostomy done. If impossible to remove the ulcer, if in the duodenum, a pylorectomy is the operation of choice. If of the stomach, partial gastric occlusion should be done. Operation should not be done dur-

ing or immediately following massive hemorrhage. If it is severe enough to endanger life the patient is not in a condition to survive an operation. Usually at least ten days should be spent in preparing the patient after a severe hemorrhage. This should consist of rest and diet, and blood transfusion if needed.

If there is a reasonable suspicion of malignancy, one of the resection operations, extending well beyond the limits of the lesion in all directions should be done if possible. If not possible at this time, a partial gastric occlusion or a simple gastro-enterostomy, depending on the location, should be done with the intention of resection at a later operation if it becomes possible.

Ulcers classified as medical failures, also those in patients unable or unwilling to follow medical treatment should be treated as the classes already considered and the operation of choice will be determined by their location, size, and the symptoms they present.

Now for some of the causes for failure to cure by surgery. The gastro-enterostomy opening may be too large and too near to the esophageal end of the stomach so the food passes into the intestine without the necessary digestive action by the stomach. If this cannot be controlled by diet, that is by giving partially digested food or food that does not require the digestive action of the stomach, it may be necessary to re-operate, closing this opening and making another smaller opening in a better location. If the opening is too small and poorly placed the stomach is forced to violent contractions and we have the same condition that results from pylorospasm or organic obstruction. If this cannot be remedied by diet and medical treatment it is advisable to re-operate, making a larger and better placed opening. Probably the most frequent post-operative complication is the formation of a marginal ulcer. That is an ulcer forms in the jejunum at the margin of the gastro-enterostomy opening. If this does not respond to medical treatment and diet, and unfortunately it rarely does, it is necessary to re-operate. If the original ulcer has healed the marginal ulcer may be excised and the gastro-enterostomy closed. If the original ulcer has not healed, it will be necessary to resect part or all of the lower half of the stomach which secretes hydrochloric acid. We have already mentioned failure due to insufficient operative meas-

ures such as failure to close the pyloric opening where it is indicated, and failure to do both a gastro-enterostomy and to destroy or remove gastric ulcers.

The condition known as a vicious circle sometimes develops after a gastro-enterostomy. It is caused by an obstruction in the intestine below the opening. The stomach contents cannot pass this obstruction, so they pass through the pylorus and enter the stomach again through the gastro-enterostomy opening to be vomited. This condition requires a second operation to relieve the obstruction.

Each case should be carefully studied and after getting the patient in the best possible condition for an operation, then the operation best suited should be properly done. Then the patient should have proper post-operative care, including dietetic and, if indicated, medical treatment. Then too, the surgeon must not overlook the treatment of contributing causes in other parts of the body as was mentioned in preparing the patient for medical treatment.

Surgical treatment of gastro-duodenal ulcer as now carried out is successful in a very great majority of cases, but is not satisfactory in all, and great efforts are being made for improvement. We have every reason to expect better results in the future than has been obtained in the past.

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#### FRACTURES OF THE SKULL CLINIC MAY 12 AND 13, 1931

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HORACE REED, M.D.  
OKLAHOMA CITY

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In fractures of the skull we are not concerned with non-union nor are we concerned with the treatment of the fracture *per se*; unless the fracture is in some portion of the skull as for instance, in the frontal region where the cosmetic affect would be bad. But we are very much concerned in fractures of the skull with the condition of the structures which the skull is supposed to protect: *namely* the brain and its appendages. As a matter of fact, injuries of the skull bone do not repair themselves as do injuries of the long bones. The orthopedists lay great stress on the reparative function of the periosteum of the long bone. The covering of the cranial bone is not periosteum in the same sense. It does not possess that quality which the covering of the long bones have in restoring injury. Hence, if a considerable seg-

ment of a cranial bone is lost, even though the pericranium is left intact, there will not be new bone formation.

The history of fracture of the skull is interesting. This was particularly true a century ago when fracture of the skull was looked on as having great surgical import. I was recently presented with a copy of one volume of "Pott's Surgery" by a friend, in which I read that some surgeons believed that every fractured skull should be trephined. Pott was more conservative. He said that certain cases would recover without having anything done, and in his opinion about seven out of ten would require this operation. In that day surgeons resorted to heroic measures to diagnose fractures of the skull. They would remove large flaps of the scalp looking for a fissure. Pott observed that these flaps would often become necrotic from infection; therefore, he was recommending a procedure which became the vogue somewhat later. This procedure was to make criss-cross incisions forward and backward and from side to side so as to expose the skull through long grooves in the scalp in search of fissures in the bone. If fissures were not immediately in evidence resort was sometimes made to the use of dyes rubbed on the bone in an endeavor to locate a fissure.

We recognize the fact that we do have skull fractures without injury to the brain. Even though this condition is rare, we do see patients recover without any sequelae whatsoever. Be this as it may, it behooves us to formulate a method of diagnosing fractured skull as an entity. This is a day of compensation for injuries and if a person has had an injury to his head he often has trouble following the injury—real or imaginary. We have not yet found out how to differentiate between the real and the imaginary in all cases and we probably never will be able to be correct in every case.

Let us consider the direct signs or symptoms of fracture of the skull. *Pain* is always present. Not all persons who have a pain in the head after an injury have a fractured skull. If one receives a blow of sufficient force to cause a hemorrhage, a swelling, or a contusion, the point where this takes place will be painful to the patient. It would be significant of fracture if after an injury to the head, the surgeon can locate a painful line. Such a line can be delineated by palpating over the head, finding two painful points and determin-

ing whether or not there is a line connecting these points along which there is pain on pressure. Such a painful line would correspond to a fissure in the bone. The determining of the location of a fissure would be significant if there were signs of brain injury in that same region.

*Displacement of fractured fragments* is another sign. If a person receives a blow from a hammer or falls against the curb of a street, a fragment of bone may be driven inward. We will find a defect, a depression corresponding to the fractured area. Such a fracture is always comminuted. If the fragment which has been driven inward, at the same time is broken into small pieces, the intracranial pressure may force the fragments out again against the scalp. In such cases there would not be the depression but there would be *unnatural mobility* detectable by the examining finger. The fragment however, which has not been broken into small pieces will be held firmly against the inner surface of the skull leaving a depression on the surface equal at least to the thickness of the bone. There is one possible cause for confusion in diagnosing a depressed fracture: *Namely*, a hematoma. If there is considerable bleeding under the pericranium this structure separates from the skull easily except at the suture lines where it is held tightly. When one palpates over the hematoma there is a sensation of a deep depression underneath. Continuing the palpating over the suture area one feels what appears to be a partial elevation of bone. This is due to the swelling or infiltration which takes place in the more external layers of scalp just beyond the suture line. If the surgeon will press firmly and continuously over this ridge for a minute or two, he will find his finger making a groove in the swollen tissue and eventually he will be able to demonstrate that the contour of the bone is smooth and continuous on both sides of the suture line where at first it felt like a displacement.

Irregularities of the skull must be mentioned. Many persons have irregularities of the skull which are normal. Others may have irregularities due to old injuries. It is important to bear these facts in mind, particularly when diagnosing depressed fracture in persons who are unconscious.

A fourth, and most important sign, of fracture of the skull is *hemorrhage*. We need not consider, from diagnostic viewpoint, a compound fracture of the skull with blood and brain substance exuding

because this condition presents no diagnostic difficulty. Nor need we consider, seriously, bleeding from the nose or mouth following a head injury, if the injury also involved the region of the face. Bleeding from the ear may be caused by an injury to the external auditory canal and a ruptured drum is not always evidence of fractured base in head injury. If there is blood in the external auditory canal one should determine whether or not it is due to actual injury in that region or the spilling of blood into the ear from some other part of the head. Bleeding from the nose or mouth is significant:

- (a) If there has been an injury to the structures of the nose or mouth and
- (b) If it persists for hours, the blood gradually becoming lighter in color and finally serous in character.

The same is true of the ear. Bleeding from a fractured base which communicates with the external auditory canal will persist for hours but the flow is an admixture of blood and cerebral fluid. It finally becomes clear and free from blood. A black eye is significant of fracture of the orbital region if the "shiner" shows up only after some hours following injury. Discoloration behind the ear in the mastoid region, which makes its appearance within a day or more following the injury of the head is also significant of fracture of the base.

While the foregoing signs and symptoms are very essential in the diagnosis of fracture of the skull *per se*; and are helpful, taken in the order given, they are not so significant as what we may call the indirect signs of fracture. The indirect signs are evidence of brain injury with which we are at all times concerned, and the injury of certain cranial nerves. The most commonly involved are the facial, the sixth, the optic, and sometimes the third.

In the evaluation of paralysis of a nerve following an injury, one must remember that the paralysis must have been simultaneous with the occurrence of the injury. The injury of course takes place where the nerve is in contact with the fractured bone. A paralysis which takes place gradually following an injury would be either injury in the cortex area of the brain from hemorrhage, or contusion, or from a secondary infection of the nerve itself.

How about the X-ray and what do we accomplish in diagnosing by its use? I have

made the statement that if we know where the fracture is we have information which may be of help in determining the location of a possible blood clot if such is in question. However, we may be deceived in this respect but this is a day when X-rays are considered as an essential method in diagnosis. Unfortunately there are two distinct handicaps in its use. First, it may not reveal a fissure fracture or if it does it does not necessarily prove where the injured portion of the brain is located. Secondly, the efforts made in getting the patient to the X-ray may in themselves work harm to the patient. My advice would be, always have an X-ray made in suspected fracture of the skull but to wait until such time when it will not work a further injury to the patient.

How are we going to determine clinically where the fracture is? Suppose we have a patient who has received a blow on the vertex of the skull. Will the fracture be where the blow has been received? What is a contrecoup fracture? Such a fracture has been described as taking place on the opposite side of the skull from which the blow was received, caused by a wave of force transmitted through the brain and received on the opposite side. From a practical viewpoint we need not concern ourselves with contrecoup fractures, but we know of a certainty that the brain is frequently injured on the opposite surface of the skull from which the blow was received. If a blow is received on the vertex there may be no fracture at that point but there may be fracture around the periphery of the skull. As the vertex of the skull is depressed toward the base the periphery must expand. This expansion will cause fissures to take place in radial lines which may have their beginning even some distance from where the force was applied.

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#### "WHEN, AS AND IF"

The bottle-fed baby exhibits symptoms indicating partial vitamin B deficiency—described by Hoobler as (1) anorexia, (2) loss of weight, (3) spasticity of arms and legs, (4) restlessness, fretfulness, (5) pallor, low hemoglobin, etc.

Dextri-Maltose with Vitamin B may be used in adequate amounts (up to 71 Chick-Roscoe units) without causing digestive disturbance. This ethically advertised product derives its vitamin B complex from an extract of wheat germ rich in B and brewers yeast rich in G. Physicians who have attempted to make vitamin B additions to the infant's formula but who have been obliged to abandon same due to diarrheas or other unfortunate nutritional upsets, will welcome Mead's Dextri-Maltose with Vitamin B. This is a tested

product with rich laboratory and clinical background and is made by Mead Johnson & Company, a house specializing in infant diet materials.

Not all infants require vitamin B supplements, but when the infant needs additional vitamin B, this product supplies it together with carbohydrate. In other cases, the carbohydrate of choice is Dextri-Maltose No. 1, 2 and 3.

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#### NATURE AND TREATMENT OF TOXEMIA OF INTESTINAL OBSTRUCTION AND ILEUS

Charles S. McVicar and James F. Weir, Rochester, Minn. (*Journal A. M. A.*, March 16, 1929), report on a study made on patients suffering from the effects of intestinal obstruction and ileus. Their observations include illustrative abstracts of the clinical manifestations, chemical changes in the blood, and reactions to treatment in a comprehensive series of cases. When it was discovered that striking changes in the chemical condition of the blood was associated with clinical evidence of severe toxemia in cases of obstruction of ileus, it seemed logical to assume that the toxemia was due to the changes in the blood and that if an adjustment in the disordered chemical balance could be accomplished there would be amelioration of symptoms. This hypothesis appeared to receive support from the fact that comparable changes in the chemical status of the blood were found in experimental animals that survived the initial shock of operations intended to produce obstruction. Treatment was therefore directed to raising the chlorides of the blood, lowering the alkalinity, and lessening the urea retention. As the result of much experimentation, an effective method of treatment was worked out. It consists in the intravenous administration of solutions containing 10 gm. of sodium chloride and 100 gm. of dextrose to each liter of water. Severe motor inhibition and marked chemical disturbance of the blood may occur following operations in which the gastro-intestinal musculature has not been traumatized. In acute intestinal obstruction, the signs and symptoms are as a rule sufficiently clear to permit diagnosis and to demand surgical intervention before disturbances occur in the blood. The theory of physiologic dehydration mentioned by earlier writers seems to find support in the authors' experience.

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#### DEMENTIA PRAECOX

R. G. Hoskins, Worcester, Mass. (*Journal A. M. A.*, April 11, 1931), believes that the current formulations of the nature of dementia praecox are too complex to afford a suitably comprehensible basis for therapy. A simplified formulation is offered that emphasizes the practical aspects of treatment. The psychosis is regarded as a persistent dream state. It is a protective reaction in a sensitive subject to a sense of personal failure to meet his own standards. The consequent loss of self-respect renders existence in the world of reality intolerable. Therapeutic efforts should be directed to restoring his self-respect, thus eliminating the necessity for the protective reaction. This can best be achieved by correction of faulty standards, by augmenting the patient's store of available energy, by teaching him an improved technic for utilizing existing energy, and by various types of situational therapy. The formulation is susceptible of intelligible, detailed presentation to those not conversant with technical psychiatry.

# THE JOURNAL

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.  
DR. P. P. NESBITT.....Associate Editor  
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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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### EDITORIAL

#### THE AMERICAN MEDICAL ASSOCIATION

At the Philadelphia meeting officers for 1931-32 were elected as follows: President-Elect, Dr. E. H. Carey, Dallas, Texas; Vice President, Dr. George C. Yeager, Philadelphia; Secretary, Dr. Olin West, Chicago; Treasurer, Dr. Austin A. Hayden, Chicago; Speaker, House of Delegates, Dr. Fred C. Warnshuis, Grand Rapids; Vice Speaker, House of Delegates, Dr. Albert E. Bulson, Fort Wayne; Trustees, Doctors Thomas S. Cullen, Baltimore; Walter S. Donaldson, Pittsburgh; Dean Lewis, Baltimore; and a member of the Council on

Scientific Assembly, Dr. John E. Lain, New Haven.

The election of Dr. E. H. Carey, the highest compliment which may be paid an American physician, is also a timely recognition of the Southwest and one of its leading medical authorities. Dr. Carey has long been connected with Baylor University, has been for many years a successful specialist, as well as a successful man. He not only stands high in the medical profession but is one of the leaders in civic endeavors in the State of Texas and the City of Dallas.

As usual the best thing about the entire meeting was the scientific exhibits. Probably no meeting has ever presented a more complete and interesting scientific exhibit. While the transactions of the Sections may be visualized and appreciated by reading articles presented at the meeting, the scientific exhibits must be seen to be appreciated. From the standpoint of attendance it seems to us the meeting should have had more members present; slightly more than seven thousand physicians registered.

### SUMMER PERILS

Formerly Oklahoma annually expected a rather high percentage of malaria, typhoid and dysenteric infections, incident to either too much water and a consequent increase in mosquitos or too low a water level with a consequent high concentration of infections producing typhoid and dysentery. Thousands of people have learned the value of pure water and perhaps the majority of them go camping with the safe water supply in mind. Thousands of them have also taken advantage of the protective preventive aid of anti-typhoid vaccine. However, many thousands have not, and it may be expected that we shall have a rise in some of these infections during the next three months. Campers should protect themselves from mosquitos, from impure water, and from the insect pests common to our climate.

Many of the so-called tourist camps have the vilest surroundings and are a menace to those who patronize them. Often they are in the hands of very ignorant people who care for nothing except acquiring the fleeting dollar. Their water supply is impure, the ordinary sanitary appliances are simply nil, and perhaps of

all dangers, these are at this time the more prevalent.

The most the physician can do is to warn his clientele of the possible dangers.

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#### THE PHILADELPHIA MEETING OF THE A. M. A.—REPORT OF OKLAHOMA DELEGATION

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This is a preliminary report of our stewardship. It is our desire to go before the annual session of the House of Delegates of the State Association, and discuss in detail some matters which are of vital interest to the Oklahoma profession. In the meantime the Fellows of the American Medical Association, and those who receive the Journal of the American Medical Association, will have access to the transactions of the National House which will shortly be published in the American Medical Association Journal. On January 1, 1931, there were 752 Fellows in Oklahoma, and 246 others who were subscribers of the Journal. When our membership roster for 1931, was reported to the Secretary of the American Medical Association, we had 1634 members in the State Association. Of these only 822 were Fellows of the American Medical Association. In other words, in our State Association there were 50% plus 5, who were sufficiently interested in the National Association to become directly affiliated with it and subscribe for the Journal. We, as Delegates, were chagrined and embarrassed with these figures. We were not consoled by the fact that a few other states show up worse than ours. Some states show more than 70% of their membership as Fellows, and the average in the constituent societies, taken as a whole, is more than 62%.

The resolution which was unanimously passed by the House of Delegates of the State Association in May, 1931, was duly presented by the Oklahoma Delegates. To this was added, by resolution, a request that the Secretary of the American Medical Association be instructed to send a questionnaire to the non-affiliated members in the State. The discussion which took place in Committee to which the resolution was referred, brought out certain facts of much interest. We were informed that, already this year, each of our non-affiliated members had been circularized, and replies from many had been received. Some of these replies, we were informed, were in the form of criticism. As a result

of the resolution we were promised that Oklahoma, at least, will again be circularized in the near future. Your delegates sincerely hope that all our members receiving the circular will respond to it. We are assured that sincere and constructive criticism and suggestions are always welcomed. That which your delegates hope for most as a result of this activity, is a substantial increase in the membership of Fellows from Oklahoma.

The Woman's Auxiliary, a rapidly growing and useful organization, is also concerned. In a report, or letter to the House of Delegates, the Auxiliary expressed a regret that so many of the husbands of their members were not Fellows of the American Medical Association, and hence many of their members did not receive the American Medical Association Bulletin in which the activities of the Auxiliary are recorded.

The work of the House, for the most part was routine, and hence might be called tame. There were no exciting or tense moments, no outstanding speeches or flights of oratory. Even the election did not excite any contest of worthwhile note. Dr. Carey, of Dallas, was elected President by vote of the whole House, cast by the Secretary, as there was no other nomination. New Orleans as the meeting place for 1932, was selected on the first ballot over Memphis and San Francisco.

The House opposes the government giving free hospitalization and treatment for non-service connected sickness and disability in veterans who are financially able to pay. The resolution by which it expressed itself, also included a suggested form of insurance for sickness and disability.

The Bureau of Medical Economics which was created at the Detroit session, had some important matters referred to it by the House for consideration and report. The next annual session will probably be the time when the usefulness of the Bureau will be tested. Medical Economics has, up to the present, received scant attention by organized medicine, but the time has come when, apparently, economics as applied to the interests of the profession can no longer be evaded in the discussion of our organized bodies.

To some of us the most outstanding development in recent years in the annual meeting, is the Scientific exhibit. This exhibit alone is worth a good post-graduate course to any doctor who is interested in

the advancement of the art and science of medicine, if he will go through the exhibit and seek out those things he is interested in. The exhibits are well organized and classified, and at each and every booth was some one to explain the particular things of interest. We were pleased to find two places where Oklahoma physicians were exhibiting new developments of more than usual interest. The exhibition hall (Scientific Exhibits) is not open to the public. Only physicians, or those presenting proper credentials, were admitted, and yet at all times even right to the zero hour of noon, Friday, the immense hall, housing these exhibits, was a veritable beehive of activity and interest. If the standard of excellence of the Philadelphia presentation of this exhibit is to be maintained, the members of the Oklahoma Delegation can think of nothing which in our opinion would serve as a more convincing proof that the American Medical Association is fulfilling its function in an endeavor to elevate the professional and scientific standards of its membership.

The Philadelphia County Medical Society as host did a perfect job. Doctors are not always satisfied with the kind of entertainment offered at the annual conventions—some of them are not exactly modest in expressing themselves when they are not pleased. These remarks are intended as a preface to the statement that when satisfied they say little. If the entertainment was not satisfactory, we heard nothing to indicate the contrary. Philadelphia was the birthplace of the American Medical Association. New York claims to be the place of its conception. It is rather strange that even though Philadelphia was the birthplace of the Association as well as, also, of American Medicine, our Association did not go back home for a reunion for a period of more than 30 years. Most of us can remember when, not so long ago, a painted and perfumed blond, down on the sea shore, enticed us away from Philadelphia. Have we realized once again that, after all, mother is our best friend?

As an anticlimax to this statement may we say that the individual delegates from Oklahoma have now served for some years. Any ideas or benefits coming from this experience which may be considered as worthwhile belong, not to us alone, but to the profession of Oklahoma who sent us. Nominally our duties have been fulfilled when we have attended and taken part in

the annual conventions. Actually we do not feel that we should stop at the moment of adjournment. If we can be of service to County Societies, preferably by cooperating with the various councilors in their periodic visits to the County Societies, we, individually and collectively, will be honored if permitted to help spread the gospel of the benefits of Medical organization. We hope that our attitude in making this suggestion will be received in the spirit in which it is made.

Respectfully submitted,

W. ALBERT COOK.  
MCCLAIN ROGERS  
HORACE REED

#### Editorial Notes—Personal and General

DR. LEALON LAMB, Clinton, who has been ill at his home for the past two months is reported much improved.

DR. AND MRS. A. L. MOBLEY, and daughter, Muskogee, have gone to Denver, Colorado, to make their future home.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION held its quarterly session at Chickasha, Oklahoma, June 9, 1931.

DR. DANIEL W. WHITE, Oklahoma City, left the United States about June 1st for a visit to European clinics. During his absence he visited Dublin, London, Amsterdam, Budapest, Vienna, Paris, Rome and Brussels.

KAY COUNTY MEDICAL SOCIETY met at Tonkawa for their April meeting. Dr. C. B. Barker, Guthrie, gave a lecture on "The Suppurating Ear and Its Complications," illustrated by slides and moving pictures.

JEFFERSON COUNTY MEDICAL SOCIETY met in regular session in Ryan, June 1st. After a dinner was served papers were read on the subject of "Cancer," by Doctors Wade, Watson and Derr. A general discussion followed.

MUSKOGEE COUNTY MEDICAL SOCIETY met May 25th for their last meeting until Fall. Dr. C. V. Rice presented the following subject "Coeliac Disease, Nutritional Disturbances and Treated from a Vitamin Deficiency View-Point."

GARVIN COUNTY MEDICAL SOCIETY met June 17th, at Lindsay. Following the banquet Dr. W. M. Taylor, Oklahoma City, read a very interesting paper on "Diarrheas of Infancy," and Dr. W. H. Livermore, Chickasha, gave a talk on "Spinal Anesthesia."

POTTAWATOMIE COUNTY MEDICAL SOCIETY met April 18th with a banquet at the Aldridge Hotel, Shawnee. Dr. J. A. Walker, Shawnee, made a talk on the "Anatomy and Histology of the Liver," which was followed by a talk by Dr. Lea A. Riely on "Diabetes Mellitus."

MUSKOGEE COUNTY MEDICAL SOCIETY met April 27, 1931, and had the following program: "Fractures of the Forearm," Dr. John E. McDonald, Tulsa; "Serum Treatment of Malta Fever With Report of Four Cases," Dr. B. E. Bradley, Tulsa; "Virus Infection of the Central Nervous System," Dr. Ned R. Smith, Tulsa.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETY met June 8th, at the Beauclair Hotel, Okmulgee, for their regular meeting. The program was as follows: "Certified Milk and Its Handling," by Dr. C. Pedrick, Tulsa. Dr. M. J. Searle, Tulsa, gave a talk on "Summer Diarrheas." A buffet lunch was served after the meeting.

LINCOLN COUNTY MEDICAL SOCIETY met at Chandler, June 1st, 1931. Dr. J. M. Byrum read a paper on the "Ruptured Appendix," and Dr. G. N. Bilby, State Health Commissioner, made a talk on the activities of the State Health Department. Dr. Bilby told what the Department was doing and explained why the Venereal Clinic at Oklahoma City was discontinued, after which the Society, by a unanimous vote, endorsed and commended him in the work he was doing.

THE SOUTHEASTERN OKLAHOMA MEDICAL ASSOCIATION met in McAlester, Wednesday, June 24, in the auditorium of the Aldridge Hotel. The annual election of officers was held at this meeting and the following program rendered, with medical and surgical clinics at hospitals: "Ether Anaesthesia," Dr. J. T. Wharton, Durant; "Opportunity, Privilege, and Duty," Dr. W. A. Ramsay, Quinton; "The Relation of Neurology and Endocrinology," Dr. Henry H. Turner, Oklahoma City; "Some Phases of Anemia," Dr. Wann Langston, Oklahoma City; "Some Phases of Hyperthyroidism," Dr. J. F. Parks, McAlester.

THE SOUTHERN OKLAHOMA MEDICAL ASSOCIATION held its 11th quarterly session at Chickasha, June 9th, with the following program:

Address of Welcome—Dr. M. A. Nash, President of Oklahoma College for Women.

The Bacteriological Aspect and Treatment of Chronic Arthritis, (with Moving Pictures)—Drs. Earl McBride and E. Goldfain, Oklahoma City. Discussion opened by Dr. Anderson, Durant; Dr. A. B. Leeds, Chickasha, and Dr. B. H. Cooley, Norman.

Warts, Big Ones that Flap and Little Ones that Kill (Lantern Slides)—Dr. A. E. Hertzler, Halstead, Kans. Discussion opened by Dr. J. B. Hix, Altus, Dr. C. P. Bondurant, Oklahoma City, and Dr. H. C. Antle, Chickasha.

Diseases of the Upper Urinary Tract with Special Reference to Diagnosis—Dr. J. Z. Mraz, Oklahoma City. Discussion opened by Dr. A. R. Sugg, Ada; Dr. R. C. Sullivan, Ardmore, and Dr. L. E. Woods, Chickasha.

Buerger's Disease—Dr. Pat Fite, Muskogee. Discussion opened by Dr. J. L. Patterson, Duncan; Dr. J. I. Hollingsworth, Stilwell; Dr. E. B. Dunlap, Lawton, and Dr. Gene Rice, Shawnee.

The Borderline Pelvis and the Uses and Abuses of the Obstetrical Forceps, (with Moving Pictures)—Dr. E. P. Allen, Oklahoma City. Discussion opened by Dr. J. M. Byrum, Shawnee; Dr. A. W. Nunnery, Chickasha; Dr. P. H. Anderson, Anadarko, and Dr. J. A. Rutledge, Ada.

Medical Economics—Dr. A. J. Weedn, Duncan. Discussion opened by Dr. C. W. Sprouse, Sulphur; Dr. N. P. Lindsey, Pauls Valley, and Dr. C. C. Allen, Frederick.

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### JAMES WOODVILLE MARSHALL

James Woodville Marshall was born on May the 8th, 1866, in Hawkins County, Tennessee. His parents moved from Tennessee to Bosque County, Texas in 1880. He moved next to Madison County, Arkansas, in 1885.

He married Miss Maggie Carr in 1891, and to this union there were born seven children, six boys and one girl. The girl died when only three years of age. There remain of his own family six sons and his wife. Of his father's family there now remain one brother and one sister. He has many relatives and hosts of friends. Surely his going has brought to us, as well as these, sorrow. They and we mourn but with a joy of remembrance that is kind.

He entered the practice of medicine about 36 years ago. In October, 1898, he moved to the present residence where his wife resides.

He was born the second time into Christianity in 1902. At that time he joined the Rock Creek Baptist Church. Some three years ago he moved his membership to the Liberty Baptist Church, 109 Rich Street, Shawnee, Oklahoma. His life as a Christian has been consistent ever since he became a member of the church.

James Marshall was a man among men. He had few enemies, and they were of the kind that were enemies of righteousness, because he clung tenaciously to right and righteousness, and what enemies he had were those who refused to follow his righteous leadership.

He had many friends, and once he made a friend, that friend was his friend always. He always dealt justice and fairness to all, always plainly and without pretense speaking the truth and right as he knew it. His patients always loved him and confided in him as a father. He knew and loved the suffering. When he gave, he gave his best to alleviate pain and suffering.

It can be said of him that "He went about doing good." His friends knew and loved him, and his enemies respected him. He grew into the life of his friends and community until they say, "How shall we get along without him?"

He did that thing that few medical men do, contented himself with a rural practice from the country. He felt his place was with the men and women and children of the country, where in God's great out-of-doors he could have the contact of nature's great healing for body and soul as well, together with his medical sk'l. He labored, lived, loved and gave himself unstintingly to his friends, his patients, his community and his church. From his life we may gather,

now that he is gone from us, inspiration for the tasks that we meet day by day, and serve God and men more honestly, lovingly and with higher purpose.

We can be fully persuaded, that when God's great assize of men and nations comes, that the life, love, labor, and faith, and hope of James Woodville Marshall will not go unrewarded by Him who shall judge the quick and the dead and reveal the hidden secrets of men and the ages.

"Not now, but in the coming years,  
It may be in a better land,  
We'll know the meaning of our tears,  
And then, perhaps we'll understand."

He is dead to us, but alive to the greatest life there can be. A quotation from Cyrus the Great is appropriate: "My Son, while I was with you in life, you knew my soul was there from what I did, and now, be persuaded, that when I am dead to you, that same soul will go on doing and you can then, as you are now, no more see it than now you do so. It will just merely lack the body for a time, and when you come, freed from the body, you will then perceive what I have done fully, both now and then."

—Contributed.

#### BENJAMIN F. APPLEWHITE

Whereas, It has pleased the Creator of all men to take from our midst Dr. Benjamin F. Applewhite of Tecumseh, Oklahoma; and

Whereas, He was a faithful member of the Pottawatomie County Medical Society while actively engaged in the practice of his profession, at all times typifying the highest professional ideals, and

Whereas, He faithfully served his profession as one of the Pioneer organizers of Medicine in this Country, not only being one of the first but serving two terms as President of this Society, and

Whereas, He was a loved husband, father and friend to all who knew him and called on him for help, always considerate of those about him, conservative in his opinions and statements, tolerant of the opinions of others, ready to give his best to those in need of assistance, medical or otherwise,

Be It Resolved, That we, the members of the Pottawatomie County Medical Society deplore his untimely death and as a token of our respect request that a copy of these resolutions be printed in The Journal of the Oklahoma State Medical Association and that a copy be forwarded to his bereaved family.

—Contributed.

#### DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.  
413 Medical Arts Building, Oklahoma City

Pustular Psoriasis. H. W. Barber, Proc. Roy Soc. Med. 23:1637 (Oct.) 1930.

H. W. Barber presented this case in support of the contention that the condition described by Sr. Dore in January, 1928, as a "chronic, mild, localized type of acrodermatitis perstans," of which Dr. Roxburgh showed two cases in October 1927, is really a pustular form of psoriasis. At the meeting of the next British Association of Dermatology and Syphilology, this question was to be discussed in detail.

This patient was shown with scaly patches on the palms, involving chiefly the thenar eminences. In these patches arose intra-epidermic pustules, which dried to form brownish scabs; the palmar surfaces of the fingers were also affected to some extent. Similar patches were present on the soles over the instep, particularly on the left foot. There were symmetrical scaly patches on the knees, which appeared to be ordinary psoriasis, and the nails, particularly those of the thumbs, presented changes-pitting and scaliness of the nail beds-suggestive of this disease and entirely different from those in true acrodermatitis. The results of examination of scrapings and cultures were negative, not only for fungus, but also for micro-organisms.

Treatment of Interdigital Mycoses Paste. R. Sabouraud, Ann. de dermat. et syph. 1:921 (Sept.) 1930.

It is Sabouraud's opinion that the failure to cure Interdigital Mycoses is due in great part to the thick corneous layer beneath which the parasites lie protected from the medicament. With this in mind, he has used pastes of barium sulphide to produce exfoliation, and has obtained excellent results.

The patient applies the depilatory mixed with a little glycerin (a watery paste is less satisfactory) for from twenty to thirty minutes after he has taken a prolonged warm foot bath. The paste is then removed with water; equal parts of tincture of iodine and alcohol are then applied. This procedure is repeated each evening, the paste every second day. No dermatitis venenata has been produced.

Is Syphilis Curable? E. Hoffman, Dermat. Ztschr. 59:279 (Oct.) 1930.

The author maintains that syphilis in the seropositive primary and reasonably early secondary stages is curable in a high percentage of cases as well as in the seronegative primary stage. He gives a list of ten criteria for a cure of syphilis and discusses their relative importance. The importance of early adequate therapy is stressed, and the maximal combined arsphenamine-bismuth cure is advocated. This consists of two or three courses of five or six weeks each with five or six weeks rest period between them. Treatments are given twice a week, the patient receiving from 0.45 to 0.6 Gm. of neoarsphenamine intravenously and from 1.25 to 1.5 cc. of bismuth subsalicylate intraglutaneously at each visit. The smaller dose is given to women. The use of arsphenamine alone

is condemned, and insufficiently vigorous early treatment is blamed for recurrences.

**The Prognosis for a Serological Cure in Syphilis.**  
Edward A. Morgan, Canad. M. A. J. 23:811  
(Dec.) 1930.

Morgan concludes, after a study of 270 cases, that one's ability to obtain a negative Wassermann reaction of the blood in congenital syphilis depends primarily on the stage of disease in which treatment is commenced. In the early stage, 80 per cent can be cured; in the latent, 64 per cent, and in the late stage 49 per cent. It requires about eleven months of treatment for the early stage and twenty-eight months for the later stages. Morgan used as a routine measure arsphenamine intravenously once a week for six weeks, and mercury by inunction, by mouth, or by both methods for a second six weeks. If the Wassermann reaction of the blood is positive, the course of treatment is repeated again and again until a negative test is obtained. The results from treatment with bismuth in a small series of cases were not favorable.

**A Peculiar Papular Eruption of the Hard Palate.**  
H. Orr, Brit. J. Dermat. 42:436 (Oct.) 1930.

Orr describes a peculiar eruption of the hard palate which he has seen in seven men all over 40 years of age with one exception (aged 30). They were heavy smokers and two had old syphilitic infections. The lesions occupied the middle third of the hard palate and consisted of whitish papules varying in size from a pinhead to one-twelfth inch in diameter. In the center of each lesion is a minute red spot which, under a lens, appears to be the patent orifice of the duct of a palatine gland. Two or even three of these red spots are seen in the larger lesions. The edges of these lesions are sharply defined and precipitous, the surface flat. The duration of the disease varies, having been as long as four years in one case. The only measures of cure resulting has been the cessation of smoking. Clinically and histologically, the lesions suggest flat warts. Beyond a feeling of roughness to the tongue, symptoms are usually absent, but in two cases slight soreness was complained of. In two cases in which smoking was stopped the lesions completely disappeared in four months; the remaining five cases have not improved.

**A Case of Multiple Horny Cysts of the Sweat-Ducts.** J. H. Twiston Davies, Brit. J. Dermat. 42:437 (Oct.) 1930.

Twiston gives us an example of a widow aged 70 in which a case of multiple horny cysts of the sweat ducts is described. She suffered from itching of the upper part of the trunk and arms for at least five years; three months before she was seen numerous pimples appeared, and the itching became so severe that it interfered with her sleep. The eruption affected, in the order of intensity, the upper part of the back and chest, the neck, groin, axillary folds and upper extremities. It consisted of a diffuse pigmentation varying in depth, and though not sharply defined, was definitely absent from certain parts, viz., the anterior surface of the breasts and lower extremities. The palms were free from cysts, although the patient remembered having some there. Over the pigmented areas were scattered numerous corical papules averaging from 2 to 3 mm. in diameter,

with none more than 4 mm. The contents of the papule, a single white seedlike body, shone through the thinned epidermis covering it. When it was pricked with a needle, a yellowish-white, smooth, spherical body could be expressed, having a slight depression at one pole; it was tough and elastic in consistency, and peeled like a miniature onion. The syndrome consists of pigmentation, pruritus and multiple superficial horny cysts. The itching was greatly relieved by daily radiant heat baths followed by application of the high frequency current, although the appearance of the eruption was unaltered.

**Reflections on Protein Therapy of Cancer.** M. Rubens-Duval, Bull. et mem. Soc. med. de Paris, Nov. 14, 1930, p. 469.

According to the author, it is probable that cancer cures which are produced by local treatment (by surgery or radiation) are due not only to the destruction of the cancer cells but also to complementary reactions taking place in the organism. The cytolytic of young cancer cells is dangerous because it liberates substances capable of exciting cellular proliferation. But also other substances may be liberated which are immunizing the body against cancer cells. The purpose of the research work done by the author during several years was to isolate the latter in order to utilize them in cancer therapy. These substances are specific for each variety of cancer. They are administered in homeopathic doses and in extreme dilution, given daily and continuously.

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**SUMMER CAMP AS FACTOR IN CONTROL OF DIABETIC CHILDREN**

Leonard F. C. Wendt and Franklin B. Peck, Detroit (Journal A. M. A., April 11, 1931), regard every large city as a potential field for the development of a camp for diabetic children, which exerts a powerful influence on the morale and physical fitness of this special group. After an experience of five summers in the management of a camp for diabetic children, which has grown from a makeshift affair with four patients to the rather complicated organization of 1930, which was capable of caring for fifty children, they feel that this type of organization fulfills a definite need and that the development of other camps for diabetic children is to be encouraged. The aim of all camps has been to get the child out doors for a time and away from the parents, who may also need a respite from the constant watchfulness so necessary in the treatment of these diabetic children. The child is likewise entitled to a vacation such as is given others more fortunate. There is, however, another important factor involved, which outweighs all other considerations; namely, the psychology of the diabetic child himself. Overemphasis on a chronic disability during the formative period has in many instances led to the development of definite abnormalities of personality in these children. Any one who has dealt with many of them realizes what a problem they often present. The child is not forced to give up his dependence and does not wish to do so. This dependence, coupled with a sense of physical inferiority, engenders an infantile type of personality. Some of these children are intelligent beyond their years, and most of them are emotional and subject to moods of depression and exhalation. The group as a whole is difficult to handle except in a summer camp.

INDEXED  
K. M.

# THE JOURNAL

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MUSKOGEE, OKLAHOMA, AUGUST, 1931.

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## TREATMENT OF THE POST ENCEPHALITIC PARKINSONIAN SYNDROME\*

FELIX M. ADAMS, M.D.

Medical Superintendent Eastern Oklahoma Hospital.

POWELL L. HAYS, M.D.

Assistant Superintendent Eastern Oklahoma Hospital.

VINITA

Since the influenza epidemic of 1918, the disease known as epidemic lethargic encephalitis has frequently been described in the medical literature and I am sure that all of you have seen a number of cases. The disease still remains a mystery, the real cause unknown. It will remain dormant for a few years and recur at irregular intervals, usually, following in the wake of an epidemic of influenza, and leave behind a trail of wrecked minds and bodies, giving the patient the most intense tremors, contractures and rigidity of muscles, dysphasia, catatonic postures, ocular crises, character changes, mental retardation and deterioration.

In the treatment of the chronic form of encephalitis a great variety of drugs have been brought forward from time to time in an effort to alleviate the condition of these unfortunate sufferers. Among the number may be listed hyoscine, the bromides, stramonium, adrenalin, the arsenicals, calcium chloride, insulin, belladonna, atropine in the usual dose, picrotoxin, pilocarpin, various endocrine preparations, sodium salicylate, the foreign proteins, intravenous injection of gentian violet, the inoculation with malaria and many others. Of these agents hyoscine and stramonium are the only ones from which any benefits have been derived as they have been instrumental in diminishing the tremors and the rigidity of the muscles—the two most persistent symptoms.

In this paper we wish to call your attention to the Hirsau atropine treatment of chronic encephalitis, as described by Stemplinger, of Munich. These experiments are based on the findings of Bre-

mer of the hyposensitivity of patients with the Parkinsonian syndrome to atropine. These patients were given a .5 of 1 per cent solution of atropine sulphate, beginning with 1 drop three times a day and increasing each dose a drop a day until as high as 35 drops three times a day were taken—an astonishingly large dose of atropine. Thirty-five patients were given this treatment—twenty-nine being incapacitated for work and eighteen in need of personal care. At the end of the treatment twenty-three were able to work and all were able to care for themselves.

Stemplinger reports twenty-six cases treated with a .5 of 1 per cent solution of atropine sulphate, beginning with one drop three times a day and increasing each dose a drop a day until as high as 21 drops three times a day were taken. He reports no bad effect on any of the patients.

Twenty-one patients at the Eastern Oklahoma Hospital were placed on this treatment with most gratifying results. A few were given doses up to 21 drops three times a day but most cases were found to show marked improvement while taking from 10 to 18 drops. When this point was reached this was determined the optimal dose and the patient was carried on same from day to day. The effects from the atropine will be noticeable in the first week, the muscle contracture will improve, the mask-like face will relax, the gait will become more steady, erect and rapid, the movement of the hands will be more free, the patient will be able to feed and dress himself—something many have not been able to do for years. The mental condition also shows improvement, he is less irritable, sleeps better, the appetite improves and he begins to put on weight.

We do not believe this treatment should be undertaken outside of an institution or hospital as a certain per cent of the cases will show alarming symptoms before the optimal dose is determined.

Before giving the case reports it might be well to give some of the symptoms that developed from poisoning in a majority of cases early in the treatment.

\*Read before the Medical Section, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May 13, 1931.

We were unable to obtain much information as to what symptoms to expect by giving increasing doses of atropine over a period of time. Stemplingler stated occasionally nausea and vomiting occurred about the sixth or seventh day and by decreasing the dose two or three drops the symptoms immediately disappeared and no other symptoms were noticed, even when giving 21 drops three times daily over long periods of time, and that a number of cases had taken 35 drops three times daily for months without toxic symptoms. We are unable to explain why our cases could not take these large doses. Marked relief of the symptoms of Parkinsonian syndrome were noticed between the fifth and ninth day, with gradual improvement up to the eighteenth day. We had a great deal of trouble with at least 80 per cent of all cases treated between the ninth and fourteenth day. On the tenth day we found three patients with great distension of the bladder and abdomen, altho they were up and dressed and made no complaints at the time. Since that time all cases are kept in bed each morning until they can be examined. Only a few others were found with bladder symptoms, but nearly all developed the distended abdomen. As soon as these symptoms occurred the drug was ordered stopped, they were catheterized and enemas were ordered, usually, with good bowel movements but little relief from the distension. Cathartics also caused good bowel movements without relief. The colon tube aided very little, strong coffee was given frequently but the distension usually remained for 12 to 24 hours, after which all symptoms disappeared. We would again start the atropine solution, increasing the dose in four-day periods, so at the end of each four days the dose remained stationary for three days. This method was continued until the optimal dose was found. By this method we have eliminated all trouble, every case has shown marked improvement altho many had been on other forms of treatment for a long time. We have not found it necessary to give beyond 18 drops three times daily, having obtained the best results in doses between 10 and 18 drops. After further observation we may be able to give the larger doses and obtain still better results.

#### REPORT OF CASES

**Case 1.** White male, age 24. Symptoms began five years ago. Has always been able to feed and dress self but for four years has not been able to speak plainly

or keep mouth closed, some tremor of left hand. Other methods of treatment gave very little relief. After ten days treatment his mouth remains closed, improvement of speech is very noticeable, tremor of hand has disappeared. Is now taking 18 drops three times a day. This is one of two cases that developed wild delirium —this occurred on the ninth day. The drug was withdrawn and he returned to normal mental condition after 24 hours. He was again started on 1 drop three times daily, increasing each dose a drop a day for four days, and given this amount three days, again increasing 4 drops and so on until 18 drops have been given three times a day without symptoms of poisoning.

**Case 2.** White male, age 21. First symptoms began about 1921. Six years ago both hands became flexed with the thumbs between the fingers and palms, this was soon followed by the head being drawn backward and the mouth was wide open. This man entered the hospital about three months ago and was the first case given atropine sulphate. His head was drawn so far backward it was difficult for him to walk and he had to be fed, as he could not see the food on the table or on his plate. He also had marked ocular crises. By placing both hands behind his head he could move his head forward, but the rigidity was so marked he could not do so with one hand. It was a physical impossibility for him to close his mouth and speech was of necessity very defective. Very marked improvement was noticed after ten days treatment. He is now taking 18 drops three times daily. His head is not drawn backward, his mouth is closed, he feeds and dresses himself with little difficulty and the eye symptoms have disappeared.

**Case 3.** White male, age 44 years. Symptoms began about eleven years ago. Has been in this hospital since February, 1926. Other forms of treatment gave very little improvement. This case had all the symptoms of Parkinsonian syndrome, with very marked bulbar symptoms. He has always been able to walk unaided; his speech has been so defective that he seldom could make himself understood, and he had not been able to dress or feed himself for five years. After ten days treatment his speech was greatly improved, he could feed and dress himself without aid. He is now taking 14 drops three times a day and can dress himself in three minutes.

*Case 4.* White male, age 27 years. Symptoms started eleven years ago. Patient attempted suicide by shooting and was committed to this institution at that time. The mouth was open and the tongue protruded, his speech was so defective he could scarcely be understood. This man's condition gradually grew worse until the past five years he could not dress or care for himself without assistance and for the last two years he could not feed himself. The ocular crises were very severe. After taking 15 drops of atropine solution three times daily he is able to walk unaided, climbs stairs without holding to railing, feeds and dresses himself and his speech has shown marked improvement. He is now taking 18 drops three times daily.

*Case 5.* White male, age 27. First symptoms were noticed about nine years ago. This man has always been able to feed, dress and care for himself. For the past two years has been unable to keep mouth closed and has been unable to write. A great improvement was shown after fifteen days treatment, after twenty days treatment was able to keep mouth closed without difficulty and writes fairly well. He is now on 10 drop doses, as the 15 drops caused nausea and abdominal distension, and the nervous symptoms seem to be as completely relieved as on the larger doses.

*Case 6.* White male, 29 years of age. First symptoms noticed in December, 1922. He has always been able to feed, dress and care for himself but was very nervous and irritable. After ten days treatment he showed noticeable improvement, and is now taking 14 drops three times daily, with excellent results—is not nervous and has shown no signs of irritability in the past month.

*Case 7.* White male, age 24. Symptoms started in February, 1920. History states he slept for six months. This was followed by a psychopathic personality, wide-open, staring eyes, mask-like face and a marked tremor of left hand and foot, involving the arm and leg. After ten days treatment great improvement was shown. He is now taking 16 drop doses. The masked face and the eye symptoms have nearly disappeared, and there is no tremor at all of hand or foot, except after violent exercise the fingers show a slight trembling.

*Case 8.* White female, age 31. Admitted to the Eastern Oklahoma Hospital

April 30th, 1926, with history of having had "influenza and sleeping sickness" in 1919, and further states she "slept for six months." At the time of commitment extremities showed marked tremor, the gait was slow and careful, the neck was rigid and the tongue and lips showed bulbar paralysis. In spite of all treatment her condition gradually became worse. For the past two years she was unable to feed or dress herself, could not walk or stand, and was unable to turn herself in bed. Her articulation was very difficult. She has been on treatment 28 days, takes 12 drops three times daily, can dress and feed herself part of the time and walks without aid. Speech is much improved. Has shown symptoms of poisoning on larger doses and further improvement may be expected when her tolerance to the drug increases.

*Case 9.* White female, age 38. Symptoms began eleven years ago, after confinement. She became unstable, would fight other members of the family and finally attempted suicide at time of commitment in 1928. She was badly emaciated and had all symptoms of the Parkinsonian syndrome with marked tremor of left hand which was practically useless. This patient is psychasthenic and has never cooperated. Has been on treatment 28 days and is taking 12 drops of atropine solution each dose. There is considerable improvement in the tremor and other symptoms, and she is now able to feed, dress and care for herself without aid.

*Case 10.* White female, age 21. The first symptoms began in 1919, and she was admitted to the Eastern Oklahoma Hospital eight years ago. She has been in bed since that time with her symptoms gradually increasing. When she tried to walk she went backwards and was unable to stop until she came in contact with the wall or something to steady her.

After treatment of ten days duration she developed influenza and the drug was withdrawn. Recovering, she again was started on the 1 drop dose, increasing a drop a dose each day. She has reached the tenth day, taking three doses of 10 drops each.

There is still some tremor of hands and legs but she is able to be up and dressed all day and is able to walk correctly. She has shown marked improvement in every way.

*Case 11.* White female, age 44. We

have very little history of this patient. She was committed to the Eastern Oklahoma Hospital September 9th, 1929, in a helpless condition, could not walk or stand alone, typical Parkinsonian tremor was noted, the eyes were fixed and staring and the speech was badly affected. For the past two years she has been unable to turn herself in bed but has been able to sit in a wheel chair during the day. The nurses have always had to lift her in and out of the bath tub.

She has been on treatment 28 days and is now taking 14 drops of the atropine solution three times daily, turns herself in bed, walks with some assistance, having taken a few steps alone, and can get in and out of the bath tub with someone to steady her.

We have seven other cases under treatment, three women and four men. One woman had failed rapidly and her death was expected daily for three or four days at the time we began treatment. At the end of 25 days we were giving her 25 drops of atropine solution three times daily (the largest dose we have given), she had gained fourteen pounds in weight, her temperature was normal and she could walk to the bathroom unaided.

We have received three new patients during the month of April and began treating them immediately. One of these, a woman, had been unable to feed and dress herself or to comb her hair for six years. She now takes care of herself in every way with little difficulty. Another, a man, entered the hospital with both wrists and his throat slashed with a razor, in an attempt at suicide; he was unable to stand or walk alone. He is now taking 16 drops three times daily, dresses and feeds himself, is able to be up all day, walks fairly well without aid and takes setting-up exercises.

Time will not permit describing the remaining cases but all of the 21 cases we have taking atropine sulphate solution have shown very marked improvement.

#### SUMMARY

1. The Hirsau atropine treatment is recommended for the treatment of the Parkinsonian syndrome in preference to other treatments advanced, as the results in 35 cases treated in that clinic, 26 cases reported by Stemplinger and 21 cases treated in the Eastern Oklahoma Hospital showed excellent results in all cases.

2. Institutional or hospital care is advised for four to six weeks, as in giving such toxic doses of the drugs it is necessary to have the patient under observation at all times.

3. A large per cent of the cases may be restored to a useful life by carrying on the treatment in their homes. When the optimal dose is established the patient may be fitted with proper glasses to overcome the marked dilation of the pupils and take the atropine indefinitely without bad results.

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#### AVITAMINOSIS: III. SPECIFIC EFFECT OF VITAMIN B ON GROWTH AND LIPID METABOLISM: LIPEMIA AS SYMPTOM COMPLEX IN THIS AVITAMINOSIS

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For the past four years Barnett Sure and Margaret Elizabeth Smith, Fayetteville, Ark. (*Journal A. M. A.*, Aug. 1, 1931), have been searching for a symptom complex in vitamin B deficiency as may be evidenced by the blood chemistry picture. Their results, however, were, in the main, negative. They have considered of little clinical importance the anhydremia and the increase in the nonsugar reducing substances of the blood, which were frequently encountered. They feel, however, that their present observations may serve as an aid to the diagnostician, since they indicate the presence of a marked lipemia, i. e., a large increase in the concentration of lecithins, fatty acids and the iodine number of the fatty acids, indicating unsaturation, in lactating mothers and nursing young and also in weaned animals, in this avitaminosis. Since there has been no definite yardstick by which to measure vitamin B deficiency from the standpoint of chemical analysis of the blood, as, for instance, the low phosphorus concentration in the case of rickets, it has been difficult to diagnose, positively, borderline cases of vitamin B deficiency as it exists in the United States; and it is hoped that a chemical study of the lipids of the blood will prove helpful to the clinician as a guide in vitamin B therapy, particularly in infant nutrition, in which anorexia is a common symptom complex.

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#### SIGNIFICANT HEMORRHAGE RETINAL LESIONS IN BACTERIAL ENDOCARDITIS (ROTH'S SPOTS)

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William Brown Doherty and Max Trubek, New York (*Journal A. M. A.*, Aug. 1, 1931), call attention to the fact that the characteristic elliptic retinal hemorrhage with white centers occur in the bacterial endocarditides, acute and subacute, and in the severe anemias, notably pernicious anemia. The discovery of this lesion because of its significant appearance may aid in early diagnosis. The lesion occurs in both eyes, with a little greater frequency in the left eye. The lesion has little prognostic value in subacute bacterial endocarditis; in several instances it had appeared and disappeared in successive crops many months before death. The authors suggest that the designation "retinitis of endocarditis" might after further study be appropriately applied.

## TRAUMATIC SURGERY\*

E. ALBERT AISENSTADT, M.D.  
American Hospital  
PICHER

When I accepted the assignment of reading a paper on "Traumatic Surgery" as part of the scientific program of this meeting, it did not occur to me at the time, that I was assuming a responsibility far in excess of my ability to meet, within the time and space allotted.

Traumatic Surgery! Within the space of but a few years this specialty has developed into such tremendous importance and covers so extensive a field that without specifying a particular subject under this caption, one must treat the subject in general terms and prepare a "birds' eye view," so to speak, of the whole.

It will be my purpose, therefore, to limit this paper to a general discussion of traumatic surgery hoping that sufficient interest might be inspired, whereby different phases of this branch of surgery might be discussed from time to time during County and State meetings.

The term "traumatic surgery" is comparatively of recent origin. It is but very few years, since the term "industrial surgery" was more in vogue. At this time the terms are used synonymously, but I am inclined to agree with those who designate the surgical treatment of injuries as "traumatic surgery," as this term covers treatment of all injuries and not only such as may have originated in industry.

Surgery of cases arising out of and in the course of industry is now beginning to attract the attention of the best men in the profession. There was a time when industrial accidents were treated either by the general practitioner or a contract surgeon employed on full or part time by corporations, thereby providing employees with medical services, either inspired by their sense of justice or as required by law. Most of these contract surgeons were young men recently graduated, who accepted such positions as a means of livelihood but who were not especially trained or experienced to perform efficient service. In other instances practitioners who were not successful in their locations and who needed steady employment for the support of self or family were employed

for this purpose. With a few brilliant exceptions, the type and standard of men practicing traumatic surgery as a specialty some twenty years ago or more, was not of the best. But many changes have taken place, and today, we face new problems which call for a readjustment by the medical profession.

Accompanying the evolution of the mechanical age and the wide spread use of the motor car, there has been an emancipation of the wage earner from the status of semi-slavery, to the point where society recognizes the justice of protecting the working man from the hazards of his occupation and when such protection fails, to provide him with such efficient medical treatment, hospitalization, nursing, etc., as might be necessary. Industry has accepted this principle of protection and service as part of its business, and the medical profession has been called upon to put forth its best effort in bringing about the recovery and rehabilitation of the injured working man in the shortest period of time, returning him when possible, to the same occupation that he was deprived of by physical disability due to the injury.

It is obvious, therefore, that if industry proposes to assume the responsibility and cost of such service, that it has the moral right to demand and should receive, the best and most efficient surgical care that is obtainable. The reaction of the medical fraternity to this demand has been slow but nevertheless effective, and today we have some of the most skilled men in the medical profession and the best trained men in the surgical field, available for service in this specialty.

I say a specialty, and I contend that traumatic surgery is nothing short of a specialty. There are men who are practicing medicine who refuse to acknowledge that traumatic surgery is a specialty and feel themselves competent to perform this service when they have had neither the training nor experience to justify such an assumption.

There are men in the profession who resent the intimation that they are not competent to handle this type of work. But any sensible person, whether a surgeon or a layman who has had an opportunity to see the results of treatment by these men will be forced to the conclusion that such is the case. Why is it that a practitioner who sends practically all of his cases of surgery to a surgical consul-

\*Paper read before the Surgical Section of the Oklahoma State Medical Association, Oklahoma City, Oklahoma, May 12, 1931.

tant, and in this manner frankly admits his incompetency to private patients to perform a simple appendectomy or other simple surgical procedure, assumes the right to treat a compound comminuted fracture of both bones of the leg in a man who not only is expected to recover from his injury but to be rehabilitated as far as possible to perform the same type of work as he did before the injury? Don't misunderstand me. I do not intend to convey the impression that the diagnosis and surgical treatment of appendicitis is necessarily simple, but I do believe that the operation for an uncomplicated case of appendicitis in competent hands is a very simple major surgical procedure as compared to the treatment of a serious fracture. But the treatment of a compound comminuted fracture of a leg requires a thorough understanding of the anatomy of the parts, the mechanics of bones and muscles, the use of the proper apparatus, training in the handling of such cases with infinite patience and gentleness, and finally, at least a reasonable amount of experience. How is a man to efficiently treat such a case who does not average even seeing one, once or twice a year? But this is not all. I have seen surgeons who are thoroughly competent to perform a hysterectomy or drain a gall bladder but who have made miserable failures in treating and bringing about a rehabilitation of a case of traumatic surgery such as a mutilating injury to a hand or a fracture-dislocation of an elbow.

One problem lies in the fact that excepting in industrial centers, by far the largest number of traumatic surgical cases are first seen by the general practitioner. I do not wish to propose that any physician and surgeon should not administer such first aid or emergency treatment as he is able to give, but it occurs to me that immediately thereafter, recognizing and realizing his own limitations, he should be willing to refer such a case to one who is competent to handle it. The tendency and temptation of the average practitioner to retain control and continue the treatment of such cases is due, in part at least to the fact, that compensation laws of many states require the employer to carry compensation insurance which pays for the treatment and the medical practitioner therefore feels assured of being able to obtain an unusually high fee for the services rendered.

How can we as a profession maintain the respect and confidence of the general

public, of men of the legal profession, of captains of industry, when day after day and year after year they see the results of incompetent treatment of cases placed in the hands of members of our profession? It seems to me that it is high time that our organization promote a greater efficiency along these lines. It is high time for introspection and self criticism, and if reform does not come from within our ranks, it certainly will come from without.

No longer does the average layman look upon the doctor with the deep reverence and awe which was the prerogative of our predecessors. Mysterious words of "would be" Latin and solemn pronouncements which once sent chills up the spine of a trusting public have passed by the board, with the "stove pipe hat" and variously trimmed "vegetation" about the face and chin. Today the average layman recognizes education, training, and experience in a doctor and expects efficiency and results. If pseudo-medical fads and isms are flourishing today it is the inefficiency and the hide-bound obstinacy of the medical profession to recognize its own short comings, that is responsible for it. And in traumatic surgery, medical practice as viewed by men placed high in industry, by the courts, and by intelligent laymen and working men, is stripped of its mystery and must stand on the services rendered and results obtained.

The above criticisms have been directed for the most part against those who attempt the practice of traumatic surgery who are not competent to do so, but there is yet another phase to the situation which in my opinion presents perhaps a more serious offense than that already discussed. It is a case of the surgeon who by reason of his training and experience is really competent to take charge of and administer treatment to a case of traumatic surgery, but whose methods reflect upon his own efficiency, as well as the medical profession as a whole.

For years, the leaders of our profession have been insisting upon complete physical examinations. Such examinations are not performed with sufficient consideration in traumatic surgery. Whether a case be one involving minor or major surgery, a thorough examination of the affected parts is indicated. Of course, this should be preceded by a careful history of the injury. In due course of time a complete physical examination should be con-

sidered, for in many cases of disability from trauma, pre-existing diseases or abnormalities contribute toward such. Then there is the case of trauma which will aggravate a pre-existing condition. A complete physical examination will reveal in many instances a non-traumatic aggravation of a pre-existing condition or disease, which if discovered promptly will save industry large sums of money and eliminate the unworthy claimant from the benefits provided for the honest working man, by law.

One of the most deplorable experiences that I have had to face is the spectacle of an otherwise competent man in traumatic surgery come before a judge or jury to give medicolegal testimony, who is woefully unprepared to give accurate information because the records of the case are incomplete. Every case of traumatic surgery no matter how insignificant or unimportant it may seem to be at the time the surgeon takes charge of the case, should have prepared as complete a record covering the history of the injury, the physical examination, findings, and treatment, as it is possible to prepare. Daily treatments should be recorded and change of status should be noted at frequent intervals. There is no excuse for a practitioner no matter how busy, to face the public with an acknowledgment that he does not remember certain details pertaining to a case. It is embarrassing to the doctor, disconcerting to those whom he represents, and unjust to all parties concerned. The habit of preparing thorough and complete reports is one that should be encouraged and practiced.

Infinite patience must be practiced in treating many cases of traumatic surgery and after active treatment has been completed and open wounds healed, there remains the period of reconstruction and rehabilitation during which time the traumatic surgeon must exercise his ingenuity, patience, skill and experience and apply all recent information on the subject to bring about a satisfactory end result. Industry is no longer satisfied with simple cures as represented by healed wounds or united bones. They expect rehabilitation of the injured man. Sufficient progress has been made along these lines so that the general public knows that complete rehabilitation in many cases is possible. The surgeon who turns out a large percentage of cases with great partial permanent disabilities is not only doing the patient an injustice but is bringing about a reflection on the medical

profession, a situation which is becoming more and more difficult to explain.

The use of X-ray is very important in traumatic surgery, and should be used more extensively than is now the case. Progress of healing of fractured bones should be noted from time to time by the fluoroscope or X-ray. Efficient treatment of trauma to bones or joints cannot be expected without this important guide to diagnosis and treatment.

The traumatic surgeon should develop a careful technique in the treatment of all cases but particularly those of minor importance. The serious case by weight of its own importance will demand better treatment. It is in the minor case which when improperly or carelessly treated, we see infections and disabilities far out of proportion to what should be expected. I do not insist upon a certain technique or a particular antiseptic, as there are a number of remedies that have equal merit. We have our own technique of disinfecting traumatic wounds. Other men use an entirely different technique and obtain equally good results. The point is, that the traumatic surgeon should select with care antiseptic or disinfectant remedies upon which he may definitely rely to give him the results he expects, and then to apply these with such technique that will minimize if not eliminate sources of error.

In the treatment of fractures we find that one important source of poor end results is the prolonged immobilization of the parts. There are too many cases turned out with impairment or ankylosis of joints from prolonged immobilization and disuse, joints which at the time of the injury were not involved at all. When it is discovered that prolonged immobilization is necessary for the satisfactory healing of fractured bones, it will be found in many cases that reduction has not been properly performed or in all probability there is an interposition of soft tissue between the fragments which make healing a slow and unsatisfactory process. Where in some surgical clinics open reduction of fractures is practiced on far too many cases, there are others where it is not practiced enough. If each case were studied upon its own merits we would have fewer cases of non-union or delayed union, or stiff joints. It may seem that the average practitioner should be competent to treat a Colles fracture, and yet when I see time and again patients who have had their forearms, wrists and hands immobilized for a period

of time ranging up to six, eight and ten weeks, is there any wonder that we have such a high ratio of permanent disabilities?

Complete immobilization should be permitted for a very short time and massage and manipulation of soft tissues should begin early. Gentle and patient passive motion of adjacent joints should be practiced even long before there is firm union, and careful active motion encouraged some time before the part could reasonably be expected to bear weight or severe strain. For example, in our clinic after a Colles fracture is properly reduced, complete immobilization is permitted for only three to seven days, depending on severity of case, and massage begun at once. Passive motion very gently applied follows, while the parts are supported by bandage and sling, and within two weeks we expect our patient to co-operate by attempting careful and ever increasing active motion of the fingers, hand and wrist. Under such treatment the annoyance and embarrassment of 50 to 100 per cent stiffness of the wrist function has been almost eliminated.

The lack of proper understanding of surgical anatomy, the mechanics of bones and joints, the action of muscles and ligaments, inspires poor surgical judgment on the part of the operator. The lack of proper understanding of acute and chronic infectious processes of the body and the relationship of trauma to such conditions, has caused a great deal of misunderstanding and has brought about a reflection upon the judgment, training and efficiency of the medical profession, that is deplorable.

I sincerely believe that the rank and file of the members of the medical profession are honest. The mistakes that they make are honest mistakes. I believe that they do try to improve themselves and would not intentionally misrepresent conditions as they exist, but I maintain that this is not true of all. It is possible to err on both sides. The doctor who treats or examines a working man sustaining a fracture of both bones of the leg, and is willing to state within only three or four months from the date of injury that the man has a total and permanent disability of that extremity is either lying or exposes his ignorance. The same is true of a physician who contends that because he sees no fracture lines in an X-ray of the skull, that the patient could not have symptoms of dizziness, headache and other intra-

cranial symptoms causing a disability after a severe head injury. There is too much enthusiasm on the part of members of the medical profession to testify for the side that pays them, so that whether a man has a total permanent disability as a result of an injury or whether he is a malingerer, depends only too frequently upon what side that particular surgeon happens to be.

Time and space will not permit me to go into the detailed treatment of traumatic surgical cases. The field is too vast, covering injury to soft tissues, bones and joints, as well as internal structures of any portion of the body, to single out any particular phase to the exclusion of the rest, in this general paper. Such reference to special types of trauma as referred to above, was more particularly for the purpose of illustration.

Now just what is it that I propose, to meet the situation which I paint as unsatisfactory?

*First.* Let us throw off the cloak of passive indifference toward inefficiency and ignorance within our ranks and by constructive criticism if possible, or denunciation if necessary, require practitioners to inform themselves, and train themselves in this ever increasing branch of surgery, or let such cases alone. If we do not honestly indulge in introspection and self criticism, the exposure and denunciation will come from without.

*Second.* As suggested above, a large proportion of cases will be seen first by the general practitioner. He should avail himself of every opportunity to improve his information relative to traumatic surgery, to more efficiently cope with its problems. And with a case in hand he should learn to honestly weigh his ability to handle it and if he cannot, to refer it to a competent colleague, after applying such emergency measures as the case demands.

*Third.* Those who do practice traumatic surgery should recognize the importance of careful histories, thorough physical examinations and complete records. They should remember that the X-ray and laboratory as a guide to diagnosis, prognosis, and treatment, are invaluable and should be used, freely.

*Fourth.* Gentleness in the manipulation of injured parts is of paramount importance and the careless surgeon has lost half his battle in treating and rehabilitating a given case, when he takes hold of tender

and wounded tissues with rough hands. Then, too, the attitude of the surgeon toward his patient is of great importance. Too many doctors make a distinction between their rich private patients and the poor working man whose service is paid for by an insurance carrier. The latter is entitled to respect and courteous consideration as well as the former. But on the other hand coddling and paternalism lends an exaggerated importance to many cases, which under the present system of workmen's compensation, lead to a distorted idea of disability. And repeated physical examinations of some patients with too free a discussion of the case by consulting examiners in presence of the patient fills him with alarm and doubt and promotes the development of the mental state, whether real or fancied, popularly abused under the grand and glorious screen of "traumatic neurosis."

*Fifth.* Close attention to superficial wounds and minor surgical cases, the improper treatment of which, all too frequently results in serious and damaging end results.

*Sixth.* Infinite patience and a philosophic attitude toward cases involving prolonged disability, as an attitude of discouragement and impatience on the part of the doctor can inspire nothing but helplessness and futility in the patient.

*Seventh.* Selection of suitable antisepsics, disinfectants, apparatus and equipment, to be applied with a studied and careful technique in all cases both minor and major, to insure the best possible results. More soap and water and less of nasty ointments.

Finally, when in doubt or in despair over the progress of a case, seek consultation and advice,—not the sort where your consultant will "kid you along" with a "Well, I guess everything is being done that is possible," etc., but real constructive criticism which you should accept as an aid and not an insult.

There has been too much soft soap and hypocrisy in our relations during consultations. If the consultant is worth his hire he should have the moral courage to point out carelessness, inefficiency and ignorance. Not necessarily in a brutal manner,—"say it with flowers" if you like, but say it.

These criticisms and suggestions are directed to the society not for the purpose

of being defamatory or destructive, but to inspire a desire to improve your information and technique in a rapidly growing specialty in a fast moving age, so that eventually, we shall win and hold a well earned confidence of enlightened lay persons. I sincerely hope and trust that the present administration of our society will see fit to assign to various members of our organization as well as visiting guests such subjects in traumatic surgery which may prove of interest to us all.

*DISCUSSION:* *Dr. J. F. Kuhn, Oklahoma City.*

I don't believe that any one can discuss this paper. I think this paper is the gem of the whole meeting. I believe in more of this type of paper. It is indeed a wonderfully written paper, wonderfully well conceived and full of marvelous suggestions and criticisms. It is going to read mighty well when it comes out in the State Medical Journal.

I wish the whole room was full of men who do surgery, so that they could have heard this marvelous paper. I want Dr. Aisenstadt to say what he said in his paper for the next fifty years, "Use soap and water and clean up the wound."

*Dr. Ross D. Long, Oklahoma City.*

In speaking of cerebral head injury, it has been my practice in handling cases where the trolleys have fallen and hit the patient on the head, to clip the hair close and put iodide of bismuth on the wound, place a cap on the head and let the patient return to work. In injury of the hand, I have been putting ichthyol 10% in colloidin on the injury.

I think that Dr. Aisenstadt gave us a very splendid paper especially in regards to Colles fracture.

What shall we say about the man who is completely disabled? We should be careful when we make a statement that a man is completely disabled. He may be completely disabled for carrying on the vocation at which he was working before the injury, but in the majority of cases, he is not completely disabled for doing many other kinds of work, and we will find that he is usually able to do some minor class of work.

*Dr. I. W. Bollinger, Henryetta.*

I enjoyed the doctor's paper very much and I think it is a well written paper, and it will be good reading when it appears in the State Medical Journal.

Recently I started a man back to work at the end of six months who had suffered a compression fracture to the third lumbar vertebra. The patient made a complete recovery and I could see no reason why he could not return to his regular work. We are too prone to classify as permanent, total or permanent, partial disabilities, all injuries of the spine especially those in which there has been a fracture, as a matter of fact, the majority of such cases will make a complete recovery if properly treated. I agree with Dr. Aisenstadt that the treatment of fractures is a specialty within itself, and the average doctor is not equipped to properly treat fracture cases.

One word about treating infected hands. While in Chicago, recently, I was in one of the largest hospitals and saw quite a large number of severe hand infections. A goodly number of these cases had been poorly treated by having the dorsal surface incised to establish drainage, when the original injury and the infection were on the palm of the hand. They were incised on the dorsal surface because the doctor who had treated them did not know that in such cases pus rarely accumulates on the dorsal surface of the hand. The reform Dr. Aisenstadt speaks of is not only needed in Oklahoma, but is needed in some of the larger centers as well.

*Dr. Butler, ——:*

I do want to thank the doctor for that paper on traumatic surgery. It is the thing that each doctor in the rural district should know more about because they are the ones who have to come in contact with traumatic surgery. We have all types of injuries, especially in the oil fields, and we are sometimes in too big a hurry in repairing some of these injuries, and I have seen head injuries and lacerations of great depth which have been dressed and the doctor did not shave the hair from around the wound. We should have more of the doctors of the industrial section of Oklahoma here, so they could hear this wonderful paper.

*Dr. Aisenstadt: Closing Discussion.*

I believe that it was Dr. Butler who suggested in his discussion, that the general practitioner will have his share of traumatic surgery. Undoubtedly, outside the industrial centers, the general practitioner will come in contact with a very large proportion of cases of traumatic

surgery and no one will deny his right or duty to take care of them. And it is for that reason that he should prepare himself by study, reading and special training to administer efficient service or else content himself with the administration of first aid only and turn the case over to competent hands. People are becoming enlightened as to the proper surgical procedure and results to be obtained therefrom. If we want to avoid legal complications, legislative interference or state medicine we had better inform ourselves and practice an advanced style of traumatic surgery.

Some one asks what should a physician do when he comes across a serious compound fracture of the femur, and should he immediately immobilize the parts in a cast. Such a case, in my opinion has no business in a cast. I believe it is more important to immediately treat the soft tissues in a compound fracture, than the bones. Again let me urge the use of soap and water. I know of no better disinfecting procedure than debridgement of destroyed tissue and complete mechanical cleansing with soap and water. When you have eliminated the inevitable infection which will follow and have healed the soft tissues, there will be sufficient time to treat and heal the bones.

Relative to head injuries. I think that there is too much enthusiasm on the part of some surgeons to operate too many skull fractures and head injuries. I have seen some very serious head cases and have found that the best treatment in many of them is to leave them alone. Remember, that there are times when the best surgery is no surgery. If you have a specific case where intracranial hemorrhage or pressure indicates trephining, then operate.

As to total disability. There is too great a tendency to designate a given case of serious or multiple injuries as a total permanent disability at too early a period. Permanent means "forever," so far as the patient is concerned, and "forever is a long time." I have seen many cases adjudged as permanent disabilities which when litigation had ceased, and nature had had time to perform her glorious work, that in spite of the doctor, the patient recovered from his permanent total disability and became a self supporting and useful citizen.

## THE TREATMENT OF BURNS, THE PROMOTION OF EARLY HEALING AND CORRECTION AND PREVENTION OF LATE COMPLICATIONS.

VILRAY P. BLAIR, M.D.

Department of Surgery, Washington University  
ST. LOUIS, MO.

On this service a great many late results of burns are cared for where the patient has escaped death but has been terribly crippled by the burn. Even though a burn may be primarily sterile, all skin contains staphylococci which may become active. In the area of irritation between totally destroyed and viable tissue these staphylococci may become active relatively far from the surface. Nothing on the surface can protect the patient from such an infection. Without going into the ideas of, or criticizing other types of treatment, I would like to present the plan of treatment that has been worked out on my service by Dr. J. B. Brown. He has been working at this method for a number of years and in going over these cases I was surprised to see what results he has obtained.

Children as well as adults respond quickly to the following outlined treatment. The patient is put in a padded bath tub of warm salt solution of from two to five per cent for two or three hours each morning. No attempt is made at sterility but the whole process, of course, is kept as clean as possible. If, however, the patient is severely burned, he may be left in the bath continuously and bowel and bladder contents emptied into the tub as necessary, cleaned out and fresh solution added. The continuous bath, however, is seldom necessary but may be employed for fatally burned patients and will usually be found to give a great amount of comfort in the last days or hours of life.

It is interesting to see a patient who is entirely unruly or a child who screams and resists at the mere thought of a dressing accommodate himself to the salt bath. A patient is sometimes put in the first bath with all the dressings and even the clothes on. After a short time of soaking the patient usually becomes comfortable and the clothes and the dressings may be cut loose and allowed to soak free. The patient may be changed from one whose morale is apparently entirely lost to a cooperative patient who looks forward to the time of the bath and who may even sleep or eat while in the bath. An attendant should, of course, be close by at all times. As soon

as possible movement of the joints, both active and passive, is encouraged.

When taken out of the bath the patient is put in a covered bed that is heated to a comfortable temperature by a row of electric lights overhead. If there is a tendency to infection or crusting hypertonic fluids are poured over the area frequently, or gauze compresses soaked with mild antiseptics such as acriflavine, gentian violet or hexylresorcinol are applied frequently. No attempt is made at restriction of movement as we firmly believe that active motion is the best preventive of secondary contractures. The primary contractures of the burn scar itself is best prevented by a strict control of sepsis and an early replacement of lost skin.

As soon as possible the patient should be gotten up and about and interested in friends or playmates. At this time a dressing will be necessary and because we believe that grease does not promote the healthiest type of granulations and is a definite hindrance to the take of a skin graft, we use either frequently changed packs of saline or boric solution, or gauze pads that have been well soaked with a water soluble jelly that contains two or five per cent sodium chloride. This dressing is as comfortable as a grease dressing and is left on to be soaked off in the following bath.

There is no originality claimed in this routine. We feel that where the full thickness of the skin has been lost, the main idea should be to get the wounds as clean as possible as soon as possible, and cover the remaining surface defects with appropriate skin grafts.

**DISCUSSION:** *Dr. Curt VonWedel, Oklahoma City, Okla.*

I am very glad to be able to talk about this subject. This subject is rather a pet hobby of mine. I talked over this situation with Dr. Brown of St. Louis, and we have been treating our burns with wet dressings. We first started the bath treatment of burns at Bellevue Hospital twenty years ago, and we used the soda baths. It was difficult to get the nurses to use it, and it fell into disuse and they soon started using the grease dressings. When the War came on they sprayed liquid paraffin on the burns which formed a covering over the burns, and of course the burns became infected. Within the last five years, out of the Ford Hospital, came the tannic acid treatment of burns. In the

hands of the average man that is one of the ideal methods of treatment of burns. When we have these cases in the hospital, we spray on the tannic acid and put them under a rack with electric light bulbs or we use a tannic acid dressing with bandages. We do not use cotton. The burns are not dressed then for two or three days unless they are very severe. We never hurt the patient and we do not use an anesthetic. We give the burns all the time in the world to heal. This tannic acid forms a heavy coat, and sometimes it is necessary to lift this with a knife and a saline dressing is used. We try to graft in two or three weeks. I am very much opposed to grease dressings.

These greasy dressings cause infection and the burns become keloidal, thick, heavy scars which contract. As Dr. Blair has stated, a vast majority of these bad results can be avoided by wet dressings. The saline dressing, if we have adequate nursing service, and the bath are the ideal methods of treatment for burns. We used the "KY" jelly with salt solution and it works wonderfully well.

*Dr. E. C. Mason, Oklahoma City, Okla.*

I hope that Dr. Blair will pardon my enthusiasm for tannic acid treatment of burns. It will probably be of interest to know how we came to introduce the treatment of tannic acid. It was during some work in the autolysis of body tissues that we conceived the idea that the absorption of autolyzed tissue might be toxic to the individual. We found that a piece of liver the width of two fingers sectioned and dropped back into the abdominal cavity of the dog caused death in 15 to 18 hours; also section of the spleen caused death in 50% of the dogs. However, in the case of the spleen, death never occurred under 72 hours. Due to observation of this work by Dr. Davidson and myself, we arrived at the conclusion, that absorption of dead and dying tissue from burns proved fatal. Following my suggestion, Dr. Davidson used tannic acid on a series of nine cases. His splendid results have been abundantly confirmed throughout this country and abroad. The advantages of tannic acid are:

1. It decreases the mortality rate from 28 to 15 per cent.
2. It relieves pain, making the use of morphine practically unnecessary.
3. It forms a protective coating,

preventing the loss of fluids and reduces sepsis.

4. It is especially to be desired in treatment of burns in children. It precipitates the toxic material and prevents absorption.

I am especially enthusiastic over tannic acid by this time, due to the fact that Dr. Underhill has recently advocated free, open drainage, and forced fluid; and has stated that local treatment of burns is especially unnecessary. He further states that a burn involving 1-6th of the body surface will cause a loss of 70% body fluids in 24 hours.

His analysis of this fluid shows it to be essentially blood plasma. Therefore, I feel the most rational method of the treatment of burns is to avoid loss of fluid by the use of tannic acid.

*CLOSING DISCUSSION: Dr. Vilray Blair.*

I do not want to criticize any real method of treatment of burns. I have used tannic acid, but the bath as I have described in our hands with the hypertonic salt solution has worked better than anything that I have seen. I always consider in any plan of treatment that the man who is using that plan of treatment can use it better than the man who is not experienced with it.

#### INTRAMUSCULAR USE OF LIVER EXTRACT

Maurice B. Strauss, F. H. Laskey Taylor and William B. Castle, Boston (*Journal A. M. A.*, Aug. 1, 1931), present preliminary observations from which it appears that the intramuscular use of liver extract has all the theoretical advantages of the intravenous method and is decidedly practical both from a therapeutic and from an economic standpoint. Furthermore, some patients apparently prefer to inject a small quantity of liver extract intramuscularly rather than to ingest a large quantity of liver or to take an extract by mouth which is not altogether palatable. From the preliminary observations it seems possible that the extract necessary for a week's treatment when taken by mouth may, if given by daily intramuscular injections, suffice for from five to six months. The intramuscular method may be of even greater advantage in those cases requiring unusually large doses of extract by mouth or actually a life-saving measure in severely ill patients. The adequate treatment of cord lesions requiring large amounts of liver extract may be greatly simplified by the parenteral injection of liver extract alone or as an accessory to oral therapy. The authors describe a method of preparing an extract of liver suitable for intramuscular injection and highly potent in peniculous anemia. Maximal reticulocyte responses were obtained from the daily intramuscular injection of the extract derived from 10 Gm. of liver. The potential therapeutic and economic advantages of this method are suggested.

## THE MODERN TREATMENT OF BURNS

EDWARD C. MASON, M.D., Ph.D., F.A.C.P.  
From the Department of Physiology, University  
of Oklahoma School of Medicine.  
OKLAHOMA CITY

Mason and Davidson have published several studies (1), (2), (3), concerning the toxic substance liberated during the autolysis of tissues. While carrying on these studies the idea was conceived that the toxicity accompanying burns was due, in a large measure, to the absorption of products of autolysis. Since such burns were usually sterile, it was decided that the toxic fraction came from the patient's own dead and dying tissues and not from any bacterial action. Davidson (4), at the suggestion of the author, instituted the use of tannic acid as a treatment for burns. The advantages of such a treatment, over other methods of treatment, lie in the fact that tannic acid (1) precipitates the dead and dying tissue which has been made acid in the process of burning; (2) such a precipitate serves several functions; (a) it prevents absorption from the burned area; (b) it prevents loss of fluid; (c) it has an analgesic action; (d) secondary infection is less likely and (e) it aids in the healing process which makes scar tissue formation less of a problem.

The splendid results obtained by Davidson, which have been so abundantly confirmed by others, strongly suggest that the tannic acid treatment has definite merit.

Very recently Underhill et al have published an exhaustive study on superficial burns (5), (6). In Underhill's papers the following points are developed:

1. Experimental animals with a burn involving one-sixth of the surface area of the skin may have a loss of fluid to the extent of 70 per cent of the total blood volume in a period less than twenty-four hours.

2. Following burns the loss of water from the blood becomes so great as to cause circulatory deficiencies. The slow progress of the blood through the capillaries results in an inefficient oxygen supply to the tissues which in turn suffer from inadequate oxygenation and partial asphyxiation.

3. Careful studies of the fluid lost in the burned area has shown it to be essent-

ially the same composition as the blood plasma from which it came and the fluid poured into the burned area must be regarded as blood plasma and, like plasma, it clots spontaneously, serving as it were the purpose of spreading an insoluble membrane over the injured area.

4. From his experiments Underhill is led to doubt the existence of a specific burn toxin and to believe that the postulation of such a theory is wholly unnecessary.

### TREATMENT

Under treatment Underhill has developed the following:

1. During the first twenty-four to thirty-six hours the capillaries in the vicinity of the burned area are in a state of increased permeability and if fluid is given intravenously it leaves again very rapidly. For this reason the administration of fluid must be continuous.

2. It is a good practice in badly burned patients to give a slow intravenous injection of 1000 c.c. of physiologic solution of sodium chloride as soon as possible.

3. Underhill further states that since there is little or no absorption from the burned area there is no danger of early infection. He recommends that local treatment of the burned area be delayed and treated as convenient.

Almost at the close of his paper Underhill asks the all important question, "Why stop drainage by the application of substances like trinitrophenol or tannic acid?" I wish to ask the question, "Why not use tannic acid to stop drainage?" The word trinitrophenol has been omitted purposely since one who has had experience with the two drugs knows that the two are not interchangeable.

Very briefly summarized we find Underhill considers the problem of burns to be one of fluid loss from the body through the burned area. His analysis of such fluid shows it to be essentially the same as blood plasma and like blood plasma, it clots spontaneously serving the purpose of an insoluble membrane over the injured area. Confronted with such a problem, I would consider using an agent which would check the loss of body fluid.

I wish to give a few quotations, selected at random, from articles appearing on the use of tannic acid in the treatment of burns. Such quotations are not offered in defense of the treatment as I feel no

defense is required, however, it does support the idea that the local treatment of burns is not without value.

Bancroft, discussing Davidson's paper in 1926, said (7), "Previously I used the debridement method . . . . The tannic acid treatment is a revelation as far as the comfort of the patient is concerned . . . . At present all cases at the Lincoln Hospital are being treated by the tannic acid method."

In 1930 Bancroft again states (8), "For extensive burns of the third degree the tannic acid has proven by far the best method in my hands." Those of us who treat burns the other way, and know the painful dressing that we have to do the first week, will be astonished at the almost complete relief from pain, and the comfortable attitude of a child during the first week or ten days, with the tannic acid membrane on."

Beck and Powers (9), "The striking and most important features of tannic acid treatment are: 1, the control of toxicity; 2, the simplicity of method; and 3, the comfort of the patient."

Benedict (10), "We have used this method in a number of cases, and in several we feel that it has been a life saving measure."

The early use of tannic acid in England is reported by Gordon (11), who states, "The use of tannic acid simplifies the treatment to a great extent. The application is soothing and quickly relieves pain. The coagulum forms a protective covering for tissues beneath and the whole area is perfectly dry, so the loss of body fluids is minimized. Scar formation is lessened, owing to the absence of sepsis, and the wound heals quickly. Above all the toxemia is controlled, and more efficiently the earlier the tannic acid is applied." "There has been little written reference in this country to the use of tannic acid in the treatment of burns, yet it is simple and efficient and deserves a more generalized use."

Beekman (12) includes the following in his conclusions: "The tannic acid method of treating cutaneous burns is the most satisfactory treatment so far advanced. The mortality has been decreased from 28 to 15 per cent in a series of 434 cases of burns in children. This decrease of mortality is the result of lowering the death rate from toxemia by two-thirds. The average hospital stay of patients was

increased six days by the tannic acid treatment. This is probably the result of the fact that patients with severe cases of burns lived who otherwise would have died."

Montgomery (13) gives the following report, "In common with Gordon, Fraser, McCullough, Beck and Powers, I feel that this method is a real advance in the treatment of burns and more than any other method, it has reduced the mortality figure. The practical absence of pain by the analgesia of the tannic acid and the complete freedom from dressings is a joy, not only to these children but to the surgeon who has to look after them."

It is clearly understood that Davidson did not discount the importance of maintaining body fluids in burns. The following quotation taken from his original paper on tannic acid in the treatment of burns gives the administration of fluids its proper consideration. "One of the most essential features of the management of all burn cases is that of keeping up the fluid balance in the body. This is accomplished by forcing fluids by mouth, where possible, or by hypodermoclysis, proctoclysis, or intravenous infusions, according to the special indications in each case."

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## VAGINAL HYSTERECTOMY, INDICATIONS AND CONTRA-INDICATIONS\*

MARVIN E. STOUT, M.D.  
Polyclinic Hospital  
OKLAHOMA CITY

Vaginal hysterectomy has fallen so completely into disuse that it may be well to review some of the conditions that are more amenable to this type of operation, as well as to point out some of the contra-indications to its use. But first, let us enumerate the chief causes for the removal of the uterus. The diseases which most surgeons agree to be indications for hysterectomy are:

1. Early malignancy; carcinoma and sarcoma.
2. Uterine sepsis, usually accompanied with infected adnexa.
3. Marked uterine displacement, usually procidentia with cystocele and rectocele.
4. Uncontrollable dysmenorrhea.
5. Uterine tumors; fibroma and myomata.
6. Uncontrollable hemorrhage.

### UTERINE MALIGNANCY

An early diagnosis of uterine malignancy, spells immediate hysterectomy to practically all surgeons the world over. And this is true regardless of the type of malignancy or the part of the organ involved. Of course, the prognosis is much more favorable in the slow growing adenocarcinoma of the fundus than in the rapidly developing sarcoma of the cervix. Too, many of us are not satisfied with hysterectomy alone and insist upon supplementing our efforts with deep radiotherapy. Nevertheless, we are all agreed to early hysterectomy and the only point to determine is the type of operation and the manner of approach.

I also know that, in the minds of most surgeons, this point is already settled, and is dismissed by saying, "We don't do vaginal."

I know the advisability of ever performing a vaginal hysterectomy is becoming more and more remote in the minds of many surgeons. But should there be exceptions to this rule? I be-

lieve there should, in fact, I am not so sure that every cancerous uterus, that is operable, should be removed thru the vagina.

Sometime ago, when we first began using gas anaesthesia, we confined its use to those patients whom we thought to be unable to stand ether. Later, we decided that if it lowered the mortality in the bad risk, it must be better for the patients whose risk was not so great. And, now, its use is practically routine.

In looking the literature over, among the discussions on vaginal hysterectomy, I find many such statements as: "If the patient is a large, fat woman, an abdominal hysterectomy is much more difficult than in a thin woman, in such cases the vaginal operation should be selected as the operation of choice." Again, I quote from Howard C. Taylor, who says, "There is no question that there is less shock and less general disturbance to the patient from a vaginal hysterectomy than from the ordinary abdominal hysterectomy, therefore, the vaginal hysterectomy is the better operation for the patient who is advanced in years, or who is a bad surgical risk from any cause." If this be true, and I think it is, then I wonder if it is not also a better operation for our more fortunate patients who do not fall into the classification of poor surgical risk.

The operation certainly can be done with much more ease to both the surgeon and the patient. The risk of hemorrhage is lessened to a degree, the risk of infection is materially lessened and there is no comparison with the amount of shock. The cervix can be more widely dissected, and to my mind, there can be a more complete removal of the organ than thru the abdominal route, except for the Wertheim operation, and I would like to quote you what Fernand Henrotin has to say on this operation, as he so completely expresses my experience. He says, "The advisability of ever performing vaginal hysterectomy for cancer seems constantly to be questioned in these latter days, since the elaborate and complicated modern pelvic evisceration has come into vogue; but gradually surgeons are beginning to realize that, after all, only very robust women, in whom the disease has not made much headway, can withstand these formidable dissections. Therefore, many of us, some from mature reflection and others by reason of sad experience, reserve the

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complete radical abdominal operation for very favorable cases, and perform either vaginal, or abdominal hysterectomy, in a less radical, and also less dangerous manner.

I can not help believing that if most of us would study our mortality rate closely, and check up our end results scrupulously, we will find that we have just as many cancer patients alive at the end of a five year period, and fewer immediate deaths; if we, too, discard the more radical operation, except perhaps in the very favorable cases, and satisfy ourselves with the less radical abdominal operation, and to my mind the vaginal route is the safer and more thorough in most instances.

#### UTERINE SEPSIS

Now, with uterine sepsis, accompanied with marked infection of the adnexa, I believe we should practically always select the abdominal route. However, in this condition I hold a different opinion to many of the more radical writers and workers, in that I doubt the advisability of primary hysterectomy in many of these cases—frank pus tubes for example. In such cases, I believe you will cure most women by simple salpingectomy and to remove the uterus routinely will increase the mortality as much as it reduces the morbidity.

There are, however, many women with large septic uteri, most of whom have large lacerated, eroded or cystic cervices, some of whom have a low grade salpingitis. These women suffer many and varied symptoms, consisting of backache, heavy uncomfortable feeling in the pelvis, with more or less tenderness, headache, disturbed menstruation, leukorrhea, and so forth. These cases do not fit into any well defined classification of disease, and many of the milder ones can be cured by curettage, trachelorrhaphy, or cauterization. But, there are a number of the more severe cases that will not yield to such treatment and can only be relieved by hysterectomy, and in such instances the vaginal operation is the simpler and safer procedure.

#### MARKED UTERINE DISPLACEMENT

In searching the literature, I find vaginal hysterectomy advocated for complete procidentia, or uterine decensus, more often than for any other cause. But, with my own work, instead, I repair the cystocele and rectocele that is usually present and simply anchor the uterus high in the

abdominal wall after the technique of Murphy, rather than to resort to hysterectomy of any form in most of these cases. And where I have seen fit to remove the uterus, I have usually removed the fundus thru the abdomen and anchored the cervical stump in the abdominal wall for the added support obtained for the bladder. I believe this to be a better procedure than vaginal hysterectomy in these cases.

#### UNCONTROLLABLE DYSMENORRHEA

Dysmenorrhea is more or less present with many women, so is always considered as a relative term. Too, some women tolerate much pain with but little disturbance, others tolerate little pain with much disturbance.

It is not my policy to advocate any form of surgery as a remedy for this condition in the absence of demonstrable pathology. However, there are a few instances when, after all efforts at relief have failed, and the condition is so severe, that one may be justified in advising hysterectomy. In such instances, if the cervix is normal, the patient reasonably thin and her general condition is otherwise good, a supra vaginal, abdominal hysterectomy is to be preferred; but if the cervix is diseased, necessitating a complete hysterectomy, I believe it can, in most instances, be removed with greater safety per vagina, especially if the patient is obese or a poor surgical risk from any cause.

#### UTERINE FIBROMA AND MYOMA

In uterine fibroma and myoma, each individual case should be a law unto itself. If the cervix is normal, the patient thin, and the tumor large, then the abdominal route most certainly should be selected. However, if the cervix is diseased, the patient fat, and the tumor not too large, and especially if the patient has hemorrhaged until she is weak and depleted, by all means the vaginal operation is by far the safer procedure.

#### UTERINE HEMORRHAGE

In many of the diseases of the uterus and adnexa just enumerated, hemorrhage is the most alarming symptom. In addition we often come in contact with women suffering from uncontrollable menorrhagia or metorrhagia from some remote or undiscernible cause, when all remedies fail to give relief. In this condition, there is no more satisfactory surgery than vagi-

nal hysterectomy and it is so much safer for these, exsanguinated patients, than the abdominal operation, that I feel it should be the operation of choice.

#### COMMENT

Like many of the younger men, I was not educated to the benefits of vaginal hysterectomy in my early training and was very prejudiced toward adopting its use. My first operation was done in 1924, seven years ago, and I might add, it was done under pressure and contrary to my judgment.

The patient, 60 years old and quite frail, was seen by one of our outstanding practitioners, who made a diagnosis of uterine cancer, from re-establishment of irregular bleeding twenty-four years following the menopause, together with the appearance of the cervix, which was typical of carcinoma.

A surgical consultant was called who agreed with the diagnosis and advised the use of radium because of the poor surgical risk. Another surgical consultant was called, who agreed that radium was the treatment of choice. (I might say that these men are two of our foremost surgeons and men in whom I have every confidence). The patient's family physician then asked me if I would supervise her radium treatments and look after her general care, to which I agreed. But, after three radium treatments at six weeks intervals, the patient consulted another surgeon who advised a vaginal hysterectomy. He refused to do it but called on me with the patient and practically forced the issue, agreeing to assist me and finally did the work for me.

To my surprise, our patient lived and, I might add, she is alive and in good health at this time.

Soon I had a patient practically moribund from uterine hemorrhage, on whom I operated successfully. Since this time I have gradually adopted its use, first with only the very bad surgical risk, and lately I have been applying it to the case that I think most adaptable to its use, rather than confining its use strictly to the poor surgical risk alone. I do not believe that the vaginal operation should supplant the abdominal hysterectomy, by any manner or means, but I do believe that there are definite indications for its use, and by familiarizing ourselves with the technique and carefully selecting our cases, we will be able to save more lives.

#### OPERATIVE TECHNIQUE

I will not discuss the operative technique further than to say that in most cases I prefer the clamp method, for the reason that it reduces the time of operation materially in moribund cases; second, it lessens the risk of hemorrhage to a degree; third, it increases the destruction of the tissues slightly, in cancer cases; fourth, I believe that a deeper vagina and firmer vault is obtained by this method.

#### END RESULTS

As to end results, for the past five years we have had all our hysterectomies, both vaginal and abdominal, come to the office at regular intervals for observation, and in the vaginal cases the vaults have been just as firm, the vagina just as deep, and the total result just as satisfactory.

DISCUSSION: *Dr. Horace Reed, Oklahoma City.*

Even though we are surgeons, we are human, and being human, we are inclined to follow fads; and in following fads we sometimes forget our tried and well known things which have been useful. Vaginal hysterectomy as indicated by the essayist has somewhat gone out of style. I agree that there are indications for vaginal hysterectomy. I do not agree that it is the method of choice. I feel that the patient which he described in his paper who is still living, is living, not because of the operation he used, but the radium which the doctor used before the operation. In other words, in cancer of the cervix, if I can operate it successfully, it can be cured with radium. I believe too, that there are patients who I cannot operate, successfully, who may be cured with radium; and in either case the use of radium for cancer of the cervix is much safer. When it comes to doing an operation because it is safer and easier to do, we are not exactly logical. In operating upon cancer of the body of the uterus, we never know how high the lymphatics may be. While I recognize Wertheim's operation as being a dangerous affair it gives us an opportunity of directly eradicating the involved lymphatics. We cannot get those in a vaginal hysterectomy.

If we do an operation as Schrowder did, split the whole floor of the perineum open, it becomes a dangerous operation and there is a great loss of blood. I saw him do this operation and the bleeding was terrific. We can take out a uterus

safely and quickly, but we recall the old saying, "A successful operation but the patient died." The doctor has given us an excellent paper. As a mechanical affair, his operation is to be recommended, but I think that we have to take great care in picking out indications in which to use vaginal hysterectomy.

*Dr. A. S. Risser, Blackwell.*

In cases of the old and feeble, vaginal hysterectomy is an operation which can be easily and simply done under sacral anesthesia. It is of tremendous advantage in those cases.

*Dr. John Burton, Oklahoma City.*

I have enjoyed the doctor's paper very much. I should like to ask the doctor, "How long should we keep the clamps in place?"

*Dr. R. Q. Atchley, Tulsa.*

It is not a question of cosmetics when it comes to the removal of a uterus, but a woman without a uterus is more or less a psychic case after she finds out that the uterus is gone. In the clinics of Europe, hysterectomy is practically routine. They believe that there is no use of leaving the uterus when the tubes are gone. They do not consider the endocrine side of the question at all. The American idea of the condition is certainly the most conservative. That is, they leave the uterus alone, unless it is large and infected, etc. The psychic effect on the woman is a good reason for leaving the uterus in bilateral pelvic infections.

*Dr. F. L. Watson, McAlester, Oklahoma.*

From the gist of discussion, vaginal hysterectomy is indicated in a good, loose pelvis without tumor masses.

*Dr. A. C. Hirschfield, Oklahoma City.*

I enjoyed the doctor's paper very much. Vaginal hysterectomy concerns us all, but I have not done any in the recent years. Abdominal operations have been found most satisfactory. I do not believe in any iron clad rule and I think that vaginal hysterectomy limits our field of vision and limits our opportunity for exploration. By doing an abdominal operation, we can look over the abdominal contents. I think vaginal hysterectomy is indicated in procidentia, prolapsed uterus, cystocele and rectocele. I have seen Dr. Price of Philadelphia remove a fibroid as large as a

fetal head and he did it very dexterously. He made us feel that it is an operation of less risk than it really is. The anchoring of the uterus to the abdominal wall sometimes causes pulling sensations, especially is it true, if the cervix is anchored in the abdominal wall. We have gotten rid of one condition and created another. I have enjoyed the doctor's paper very much and it has indeed given us food for thought.

*Dr. M. E. Stout: Closing Discussion.*

I thank you gentlemen for the frank discussion of my paper. Ten or fifteen years ago, I felt as Dr. Reed expressed himself, that vaginal hysterectomy was seldom indicated. The more I have followed vaginal hysterectomy cases, the more I have watched them, and have compared them with cases of abdominal operations, the more I think that there is a field for vaginal hysterectomy in selected cases.

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## THE USE OF SODIUM AMYTAL IN OBSTETRICS BY THE GENERAL PRACTITIONER\*

E. K. COLLIER, M.D.  
TIPTON

Since the introduction of sodium amytal several years ago a great number of physicians and surgeons have given it clinical trial. Some favor its use, and others condemn it; each for an apparently good reason. The introducers themselves have encouraged each user's drawing his own conclusions.

My conclusions are based on clinical trial exclusively, in the field of obstetrics, without direct personal experience in more than a few surgical cases operated under its influence. Without reference to its possibilities in surgical use, I have found its use in *selected cases* of obstetrics a decided therapeutic aid both subjectively and objectively in that the mother approves, and also it has shortened the course of the first stage.

It is quite true that few drugs will merit the popularity of nitrous oxide in dulling labor pains, but it is also true that the physician away from the hospital cannot carry nitrous oxide or employ a skilled anesthetist, as can the specialist enjoying hospital facilities and treating a class of patients with whom the fee is of secondary import. Sodium amytal may have more limitations than nitrous oxide because it should be given with care to those with hypotension, asthenia, marked anemia, depleted muscular tone, and to those in whom you expect dystocia from insufficient uterine contractions. And were the obstetrician to attempt producing the total amnesia of labor possible with nitrous oxide (given before and during pains by inhalation) he would throw the sodium amytal likely into the disrepute now held by scopolamin hydrobromate in twilight sleep. But its conservative use should prove a boon to the mother.

In the comparatively small group of 81 maternity cases that I have used it in, I have experienced most satisfaction in multiparae, quite favorable reaction in primiparae up to the age of thirty years, and least satisfaction in primiparae over thirty.

The primiparae under thirty enjoyed a

first stage of labor usually under ten hours, and quite a few times so short as seven hours which latter is less than half of Williams' quoted average of sixteen hours from the beginning of pains until complete dilatation in the first child bearing. In the multiparae it was rarely called for as a pain relief until dilatation was more than half complete, in which its action has always with me been favorable. In primiparae over thirty, the second stage has been prolonged over the normal average, and the first stage has not appeared as though shortened by the drug's use. But the course of labor in elderly primiparae is tedious anyway; so I can't lay the accusation upon the drug.

In five multiparae who were able to attain a four finger dilatation without becoming uncomfortable, I carried them through delivery without the mother remembering anything about it, and with a minimum of stirring around during pain; and this on a dose of sodium amytal not exceeding nine grains. All these mothers were between 120 and 150 pounds weight and were well developed, with a history of no previous dystocia.

In two primiparae below thirty there was total amnesia of labor from a two finger dilatation on, but in them the dose of drug was over nine grains, and in one of these there was some respiratory embarrassment in the child. In two primiparae over thirty (of ages 33 and 35) there was a tedious course (but the child in each case suffered no embarrassment at all). During the drug action there was better rest, but due to the long course, the drug could not be repeated because of anxiety as to the maternal and fetal circulatory condition.

Therefore the cases in which I recommend the use of sodium amytal with most enthusiasm, are the multiparae, for they have in every case proved very appreciative. But women who have not previously undergone the excruciation of unaided delivery, having no background for comparison, fail to appreciate any aid with the gratitude shown by one who is already a mother. Even here, its acceleration of dilatation will justify its use, where there is no contraindication.

In some, when the presenting part rests on the pelvic floor and the action of the drug has subsided after two or three hours under a dose of sodium amytal not over six grains, there is so much pain during

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pains that the mother does not pull on the straps, or allow anyone to pull on her hands. Instead she uses her abdominal muscles in an attempt to retard labor. In these cases, where the fetal heart sounds, maternal condition, and circulation as manifested by blood pressure height, are normal the woman will stop trying to restrain or impede the progress when given about 3 more grains intravenously. That is, in most cases. In others it requires a bit of inhalation anesthesia to ease the pain.

Concerning the method of administering the drug, I prefer the intravenous route, except in the early part of the first stage, when the oral use of capsules is almost as good and of less trouble to the patient. For intramuscular use the  $1\frac{1}{2}$  and 3 grain ampoules are prepared. I have never used sodium amyral intramuscularly in obstetrics because by this route I cannot properly gauge its immediate or remote effect, not knowing what height of action its maximum will be. By intramuscular route one must wait for twenty minutes or more for maximum effect. And unless one knows that there is no reason for the patient being more sensitive to its action, he might obtain an approach to surgical anesthesia in an obstetrical case and this might prove disastrous (to the child).

By intravenous route, every cubic centimeter of solution reaches its maximum effect before you introduce more, and when your syringe needle is withdrawn you know just the final effect. One can give it orally in 3 grain doses, or up to 6 grains, if he knows that the patient will not react too profoundly. The first dose orally should not be over 3 grains, to test the reaction. Then in about an hour one may repeat, intravenously if immediate dulling of the pains is required. In the early part of the first stage the pains do not demand very much sedation usually. In such cases I give not over one capsule, then wait  $\frac{3}{4}$  hour before repeating, to guard against overaction in the sensitive. It is usually preceded a half hour by morphine sulphate gr.  $\frac{1}{4}$ .

In some women the cutting pains of dilatation are almost as severe as those experienced during expulsion. When they wish relief they wish it immediately, and since it is just as safe to give intravenously, I give it in preference by this route, very slowly as directed, not over 1 cubic centimeter a minute (each c.c. of solution representing  $1\frac{1}{2}$  grains of drug). The

best time to start giving it intravenously is, if you can judge correctly, about four minutes before the onset of a pain. Introduce two c.c. slowly, one a minute, then stop to see what effect this three grains will have on the pain. If you give a six grain amount here, or continue giving solution until the pain stops, you cannot know that you have not given enough to lessen the pain strength or stop them altogether for an interval. But if you stop two minutes before the pain comes on, or two minutes even before the pain reaches its height, you know that the next pain will have as much or more force as this one. If the pains are quite excruciating, and so far apart as eight minutes, stop its introduction between pains and await the next one. But do not withdraw the needle and lay the solution aside, for it rapidly decomposes into a more toxic compound. If the solution is cloudy or hazy, it cannot be used, and these directions are given with every lot of ampoules. The point of desire in the drug's effect, is to have the mother at perfect ease or asleep between pains, to rouse during pains and use her abdominal muscles and diaphragm in bearing down during the second stage. She grasps and pulls, holds her breath and strains, then relaxes and rests. As the pain comes on she may complain of her back, as is quite common. She may even appear excited, and if anything more upset than before the drugs use. But it is common for them to later state that they did not remember carrying on so.

Just a word as to the prerequisite asepsis of the intravenous administration. Surgeons are prone to speak of different degrees of the superlative term "absolute" in asepsis. Thus when one says absolute asepsis in an abdominal operation he allows you to put the "sterile" gloved hand into the peritoneal cavity. But, speaking of asepsis in bone surgery one takes it for granted that the operator does not allow even glove contact of bones, using untouched ends of instruments. The word asepsis here then has two different degrees of meaning. So, in intravenous technique. Ordinarily a man may talk over and breathe over the piston of the syringe to be used, or pour the solution in a room where people walk on carpets. The dope fiend may even dissolve his morphine in water taken from beside the road and "shoot" it intravenously with immunity. But in pregnancy, according to the late John B. Murphy, the site of placental

attachment is the most fruitful existing field for infection by blood stream. There is stasis and congestion, and laceration. A stray germ or two in the circulation of a normal person may be of no consequence, but in the pregnant woman it may mean a double mortality.

The deciding factor in the use of any drug is its action in the most unfavorable cases, and not its action in the majority. One mortality in every one thousand cases would justify condemnation of any drug no matter how alluring in the other ones. Therefore, since my cases do not equal one hundred to use sodium amyta in, my final attitude rests upon the decision of those who shall have used it in hundreds of cases, after considering both secondary effects as gotten from tissue section study and clinical effects as observed at the bedside. As yet, however, if one keeps within the dosage advised by authorities who have used sodium amyta extensively, there is no untoward effect in the obstetrical dosage.

In all except the following cases the action of sodium amyta in my hands has been very favorable.

*Case 14.* Mrs. H. M., well developed white primipara, age 20 years. Distance from lower border of symphysis pubis to sacral promontory by previous measurement was 13½ cm. No signs of rachitic or contracted pelvis. Blood pressure 126-74 mm. Hg. Maternal heart rate 72 per m. Fetal H. R. 122 per m. (The mother was seen in labor 3 hours after onset of pains—or at 7:00 a. m.) She then had complete effacement of cervical canal. Presentation was L. O. A. with good engagement.

Sharp cutting pains drove the mother almost frantic. At 7:15 morphine sulphate gr. ¼ given hypodermically and in ½ hour 6 grains sodium amyta. (Three grains more than my trial dose at present). She had no relief apparently within ¾ hour. At 9:00 a. m. she received four and one-half grains sodium amyta intravenously, and rested between pains but required restraint during pains, until 11:00 a. m. There was only 4 mm. drop in systolic blood pressure after this intravenous dose lasting only 15 minutes. Fetal heart rate not accelerated after pains. Soon after 11:00 she became very restless. At 12:00 she was given four and one-half more grains intravenously, very slowly, between pains. She still re-

quired physical restraint during pains. Fetal heart rate rose from 122 to 128 per minute, after pains. Chloroform was given just before delivery to slow the progress of too rapidly descending head. Delivery completed at 2:00 p. m. without episiotomy or perineal tear, though palpation revealed submucous diastasis of muscles of pelvic floor. Baby had marked palor and did not breathe immediately. Cord pulsation strong. Pharynx was aspirated and Alpha Lobeline ampoule given one in umbilical vein before cord ceased pulsation, and one ampoule subcutaneously in child. Within half minute after intravenous lobeline the baby drew a deep breath but did not cry. The cord was cut and delivery finished. In approximately a quarter of an hour the child's respiration became shallow and wavy, so that as a stimulus it was placed alternately in cool water five seconds and warm water fifteen seconds continuing this for about five minutes. I stayed by the baby until respiration improved decidedly. Urine and meconium were passed three hours after delivery. It cried and became suffused with generalized flush five hours after delivery. Mothers condition was excellent. Milk secretion appeared copiously on second day. Few hyaline casts in urine for 10 days after delivery, as in most cases even without sodium amyta, where chloroform is given. The mother was much pleased, and so were all the relatives, but I was not.

*Case 37.* Well developed white primipara, age 18 years, weight 120 pounds, without discoverable pelvic contraction. Morphine sulphate gr. ¼ was given hypodermically at 2 fingers dilation, the mother having sharp cutting pains. Fetal heart rate 134, L. O. A. Maternal blood pressure 122-74. After one hour I gave 7½ grains of sodium amyta intravenously for extreme discomfort. The mother obtained no relief apparently, thrashing around on the bed, and requiring restraint both during and between pains. Dilatation was complete in four more hours, making the length of first stage total 8 hours. Taking Williams 16 hour average in primipara, this makes her time just half the average.

The mother complained of continuous low back pain, aggravated during the pain. She always wanted to turn on her side. When her wish was granted she still wanted to turn, appearing unable to realize her position. Otherwise her ori-

entation was excellent. During this time her neighbors started searching for the baby's cloths and band but could not find them. The mother, on being asked, told them just where to find them, but after delivery could not remember anything about it. She had therefore an approach to clouding of consciousness so far as fixation of perceptions was concerned. Her association of ideas was excellent, and recollection of previously fixed perceptions good, but during the drug action there was no fixation of perceptions and therefore the desired amnesia of labor.

Chloroform was given for short intervals just before delivery to retard speed of descent. No episiotomy was done. There was no perineal tear but there was a slight cervical tear which I repaired as best I could under the circumstances. The baby's condition was excellent, the infant crying the moment it hit the air, and breathing with deep excursions. There was not the least palor.

*Case 33.* One of pre-eclamptic toxemias. Well developed white primipara, age 29 years with negative findings except that she had heavy albuminuria starting six days before delivery, with marked swelling of ankles, some disturbance of vision, a retinitis (presumably albuminuric) in one eye. Her blood pressure was very high, rising from a previous 130-90 to 180-120 during the last week. Hospitalization and institution of labor was strongly insisted upon but refused. Three days before date of expected delivery she consented to hospitalization, and was given intravenous glucose 25% in 50 gram quantities twice daily with insulin 15 units (without any protein, due to its tendency to increase katabolism and its high anabolic coefficient). This could not, obviously, be kept up long, due to the protein requirements of the child but since it was so close to expected date of delivery this restriction temporarily was deemed not inexpedient. Under this treatment and rest the blood pressure dropped to 160-94 within 36 hours. On the third day albuminuria was much less, and quantity of urine rose from barely over 1100 c. c. to nearly 1800 c.c. with sp. gr. 1.018 as highest and 1.010 lowest gm. per c. c. My attempt to do a urea nitrogen of blood was of no avail, the technique failing somewhere.

The onset of labor supervened without the mother becoming very uncomfortable until 3 finger dilatation was attained. At

four fingers dilatation  $7\frac{1}{2}$  grains sodium amyntal was given intravenously without morphine. After complete dilatation the mother bore down forcefully and was delivered of a boy baby within three hours, taking chloroform just before delivery. The baby breathed promptly. A canary bird watering cup was fitted over the external genitals and voided specimen caught, containing no albumin and no casts. The mother had a one minute convulsion according to the attending nurse, biting the tongue before the mouth could be wedged, three hours after delivery. Four more hours later there was another convulsion, chloroform being given for the length of the convulsion, which still lasted about a minute. I did not see the mother until about ten minutes following the convulsion, when the mother appeared semi comatose, with good pupillary reaction but slight corneal reflex. She roused within an half hour to perfect lucidity. Albuminuria ceased within two weeks and eye grounds became normal about two weeks later. Blood pressure was 124-68 fourteen days after delivery.

Sodium amyntal should not be given where there is evidence of fetal distress as barely audible heart sounds, or in cases with inherent weakness of musculature. Regardless of symptoms or maternal pain, it should not be given in amounts sufficient to lessen voluntary control of accessory muscles of labor.

I think its oral use should be confined to earlier stages of labor. Personally, I prefer the intravenous route in both early and late stages. As to its oral use for any cause whatever, it should be given to patients abed only; never to ambulant cases and the doctor, after giving it in obstetrics, should remain with his patient. The patient may participate without more than mild complaint, so that, someone with some insight at least should be constantly at hand. If the patient is allowed to get up and walk, someone should steady her, due to her poor equilibrium.

In any case where an untoward reaction on part of either mother or child was observed by me, as in the above respiratory embarrassment, I must state that it was due to my injudicious use of the drug, and not to the drug *per se*.

**DISCUSSION:** Dr. E. P. Allen, Oklahoma City.

I have not used sodium amyntal as I have had no occasion to use it. I give mor-

phine and later on gas oxygen. I probably will use sodium amyral after the doctor works out several hundred cases to be sure that he is not hurting the babies and mothers. We give everything in the world, but later on, we go back to the old fads.

*Dr. J. B. Eskridge, Oklahoma City, Okla.*

I am like Dr. Allen, I have not used sodium amyral. The men in New York City are using it in every conceivable method and dosage. They use three grains followed with morphine and scopolamin. DeLee in Chicago uses three grains of sodium amyral by mouth and repeats as indicated every one or two hours, not giving more than 9 grains. Sodium amyral next to magnesium sulphate is the greatest respiratory depressant that we have.

*Dr. Collier: Closing Discussion.*

I have nothing else to say except that I may reduce my dosage of sodium amyral. I have not had any mortalities with the sodium amyral.

—o—

#### MULTIPLE MYELOMA AND DIABETES INSIPIDUS

Mark J. Bach, Milwaukee, and William S. Midleton, Madison, Wis. (Journal A. M. A., Aug. 1, 1931), report an instance of the coincidence of gross pathologic changes in the bones and diabetes insipidus. Of particular significance were the possible changes in bony structures about the sella. Whatever the interrelationship between the bony lesions and the disturbances in water metabolism, a further example is added in the case of multiple myeloma with associated diabetes insipidus.

—o—

#### UNUSUAL SKIN REACTION TO EPINEPHRINE

According to R. W. Lamson and S. O. Chambers, Los Angeles (Journal A. M. A., Aug 1, 1931), the subcutaneous administration of epinephrine may be attended with certain protracted or even permanent manifestations. In one patient observed by them so small a dose as 0.2 cc. caused a definite anemia of the skin in an area of at least 3 cm. in diameter. This anemic area was observed more than six hours after the injection, and somewhat larger doses have prolonged such manifestations for a period of from twenty-four to thirty-six hours. In spite of such protracted action with accompanying anemia of the skin, no permanent change was observed. The skin immediately around the site of injection shows marked atrophy suggesting the appearance of the foveated scar which follows a "primary" vaccine virus reaction. These unusual reactions may represent a local hypersensitivity or idiosyncrasy to the drug, but they have not been accompanied by any untoward systemic responses.

#### DISEASES OF THE VESSELS OF THE FOOT AND LEG

A. L. BLESH, M.D.  
Oklahoma City Clinic  
OKLAHOMA CITY

These may be divided into two main classes: (1) The congestions—(2) The anemias.

The congestions are (a) Thrombo-angiitis obliterans (Buerger's Disease), (b) Varicose veins. The Anemias are (a) senile sclerosis, (b) Symmetrical anemia (Raynaud) and (c) Diabetic gangrene.

Buerger's disease is quite frequently confused with Raynaud's disease. They are fundamentally different both in appearance, origin and symptomatology. The former is essentially an infiltration and thickening and diminution and loss of caliber thru contraction. It is progressive, agonizingly painful and constantly associated with intermittent claudication. Intermittent claudication is merely intermittent sural muscle cramps appearing upon walking even quietly on a level surface. The foot blanches white on elevation and becomes purplish red with aggravation of pain when dependent. Gangrene beginning in toes, especially the great toes is usual, absence of pulse in Dorsalis pedis, disappearing first in posterior tibial, last in anterior.

Raynaud's is usually symmetrical, appears in painful paroxysms during which the foot blanches corpse-white whether up or down. Pain is similar to that of ice-chilling. There will be shifting areas of red. Gangrene is rather rare. In this advanced stage should gangrene occur, the differentiation is more difficult.

The former occurs most frequently in middle aged male Russian Jews but not alone in that class; the latter in females especially of the hysterical type. The former is due to a gradual constriction of the vessel walls caused by a low grade inflammatory thickening of the adventitia. In the former there are no days of ease, the latter will exhibit days and sometimes weeks of almost complete relief.

Varicose veins should be easily diagnosed and differentiated. Yet, but a few days ago a man having Buerger's disease well advanced, typical in symptomatology, came into my office who had been treated by injection for varicose veins. Of course very painful ulcers were the result of each injection since it would be almost impos-

sible to get the injection in the vessel in a case of Buerger's. Senile sclerosis occurs in the aged, usually men. Arteriosclerosis of a general type will be evident. Pain not so severe and of a different character to Buerger's, up or down with the leg makes little difference.

Diabetic anemia most frequent in the over-fat middle aged individual, laboratory will aid. Some erythromelalgia but not so pronounced as Buerger's, associated with a certain degree of anesthesia, pain not so severe—trophic ulcers and also gangrene.

Treatment in Buerger's: Hypertonic intravenous salt solution has long been used with some benefit. Heat is universally accepted as beneficial. The principle underlying all treatment is vaso-motor dilatation.

Through the work of Steel of Philadelphia, intravenous sodium citrate has earned a place in the treatment. In conjunction heat is applied and K. I. given by mouth. The method of treatment is as follows: First month in bed, lower half of body constantly in a hot air electric light bath, temperature 110. An injection of 60 grains sodium citrate dissolved in 20 c. c. of freshly distilled water daily. Inject into vein slowly, consuming about 5 minutes of time. Second month every other day, with daily leg massage, in wheeled chair with legs down every morning, perhaps a little walking. Intervals of injections gradually lengthened until at the end of a year, one weekly. Sleeps in electric bath for one year. K. I. 10 gts. three times daily throughout the year. Claims to functionally restore 80%, 20% going on to amputation. Amputation should be the Gritti-Stokes type.

Object of treatment, the building up of collateral circulation.

Raynaud's is a disease primarily of the vaso-motor type and in this ganglionectomies and peri-vascular sympatheticomies comes uppermost to mind. This is quite well agreed upon in this disease, but is much in dispute in Buerger's.

Treatment of other types not now considered.

#### REPORT OF WOMAN'S AUXILIARY TO THE OKLAHOMA STATE MEDICAL ASSOCIATION

The Woman's Auxiliary to the Oklahoma State Medical Society held its annual business meeting May 12, 1931, in

the Skirvin Hotel, Oklahoma City, with Mrs. Lloyd Sackett, state president officiating. There were fifty-two doctors' wives present. The state auxiliary now comprises three organized counties; Oklahoma, Pottawatomie, Tulsa. The latter affiliated with the state at this meeting. There are also twelve associate members, or members at large, from various cities over the state.

Mrs. Herbert Wright, incoming president, made an interesting talk on organization work, particularly stressing the need for it. She reported the fact that several of the larger cities are contemplating organizing auxiliary units in their counties.

The newly elected officers are: President-elect, Mrs. Earl D. McBride, Oklahoma City; first vice-president, Mrs. Fred Clinton, Tulsa; secretary, Mrs. H. G. Campbell, Shawnee; treasurer, Mrs. Carroll M. Pounders, Oklahoma City. The appointed officers are: Mrs. Chas. Woods, Tulsa, parliamentarian; Mrs. L. F. Cailey, Oklahoma City, historian; Mrs. John Z. Mraz, Oklahoma City, editor.

Oklahoma County Medical Society and Oklahoma County Auxiliary delightfully and informally entertained the visitors to the state convention with a series of social affairs. The first of these was a progressive party on the evening of the first day. The members and guests went first to the home of Dr. and Mrs. Ray M. Balyeat where a musical program was presented. Next they went to the studio home of Dr. and Mrs. Fred Sheets where they viewed the lovely pictures painted by the hostess. Mrs. Sheets is no other than Oklahoma's own Nan Sheets, nationally known artist. Last, but not least, they went to the home of Dr. and Mrs. W. K. West where Mrs. Bessie Leigh Chestnut presented a group of readings. Here the guests were served refreshments. On the second day the visitors were honored with a luncheon and style show on the roof garden of the Skirvin Hotel. Later that afternoon, they were the guests of Mrs. Edmund S. Ferguson at a lovely informal tea in her home. The third day, the executive and advisory boards held a luncheon and round table meeting in the University Club. The reception and dance in honor of the new president of the State Medical Society was held the third evening at the Shrine Temple.

Betsy (Mrs. John Z.) Mraz, Editor.

# THE JOURNAL

OF THE

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
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DR. P. P. NESBITT.....Associate Editor  
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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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### EDITORIAL

#### VARICOSE VEIN INJECTION DANGERS

All surgical procedure, regardless of its simplicity, is subject to possibilities leading to trouble, sometime having very tragic endings. The writer has noted the surgical excision of varicose veins for more than 30 years and has never known, personally, of a death. Nevertheless death has occurred from surgical treatment of varicose veins. Lately the injecting of varicosities, by various coagulants and irritants, has become the vogue, and, where applicable it is believed that it is

much easier on both the patient and the surgeon than treatment by surgical excision. It is presumed that the surgeon will be discriminating and will select those cases for injection in which injection is better fitted than excision. The injection treatment has the advantage in that the patient may go on about his work, while surgical excision calls for more or less bed confinement. However, there are certain types of greatly enlarged massive, torturous channels, which theoretically at least, would seem to be better treated by ligation high up and excision of the larger masses rather than treatment by injection.

Regardless of the chemical used there is some danger, not necessarily in the chemical itself, but due to the fact that it forms a clot which may become an embolism. Isadore Silverman, Brooklyn, (Journal of the American Medical Association, July 18, page 177) reports embolism and death following a case, following injection of 25 cc of 25% solution of sodium chloride. The report is valuable in that it reveals that the case reported was only the twentieth in which embolism, following injection in hundreds of thousands of cases. It was timely in that he advances the opinion that both the amount and the strength of the solution were too large. The writer has never used more than 10 cc of 20% solution and has seen no bad results except from an occasional leak into the adjacent tissue which while not serious, cripples the patient more or less and aggravates the surgeon.

It should be remembered that this simple procedure is not devoid of danger and it is questionable whether the amount or kind of solution used has any more to do with bad results than the solutions of higher concentration and quantity. The bad results occur from the detachment of a clot and the formation of an embolism. The dangers, few though they are, should not be forgotten.

### KEEP APACE

"It used to be that a man, competently educated to the point of graduating from college, could continue to be educated by casual and occasional reading, which kept him in a contact with the slow paced developments in the arts and sciences. As things now are, each month and each week brings its tale of discovery and invention and the frontiers of knowledge are constantly being enlarged so that no casual

effort can keep even the best college education up to date.

"Because of this thoughtful people throughout the world are asking themselves how much and what kind of knowledge does a man need in order to be a good citizen, and by what processes can this minimum requirement be gotten out of the infinite multiplication of books, periodicals, meetings of learned societies and radio addresses. . . . .

"It is important for an educated man to know not merely all about his own major subject but enough about all subjects to be able to relate his own field of knowledge to life. Few of us have time to search all the magazines for articles on our own specialty or on generally worth while subjects."—Newton D. Baker, *The Reader's Digest*, June, 1931.

The above should be posted on top the desk in front of many physicians. The entire profession at times is charged with some failure on the part of an individual physician. Our constant endeavors demand sustained study and reflection if we are to keep apace with valuable progress, which soon becomes a necessity in the practice of medicine; otherwise the physician will find himself surely drifting down stream, left far behind in the march of newer knowledge. Diplomas and certificates to practice is the mere start. The physician at all times should be alert to improvements in technique and knowledge; he should always profit by his mistakes, should constantly bear them in mind and remember that repetition of them is hardly excusable. At least one good medical Journal, covering all fields should be a part of his equipment, after that those bearing directly upon the individual specialist's problems should be his concern, but it must be kept in mind that progress is constant, that medicine is an inter-locking profession and that the specialist will remain so in name only, if he neglects the broader aspects. The surgeon must bear in mind the many medical possibilities, while the internist must also remember the surgical possibilities of his medical problems.

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#### THE NEW RICH AND CHARITY

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The world wide depression which rendered oil almost valueless, has of course, affected physicians as well as it has everyone else and regardless of what part of the State in which they reside. It is to be hoped that things will improve in that

connection soon, certainly oil and its by-products will not always remain a drug on the market. The history of oil in the last quarter of a century in this state has presented one of the most remarkable examples of the workings of the laws of chance ever noted. It has been a blessing to the good and the bad. Over night it has made paupers, gamblers and men of mediocrity wealthy. Too often in such cases the beneficiaries squandered it without regard to the inexorable dues wealth owes a nation. It sounds socialistic, more than that, Russianistic, to remind those who acquire money that they do not necessarily acquire it entirely for their own personal use, to waste in riotous and useless living, but they acquire it for the good of the State which means their fellowmen as well as themselves.

Among the score upon score of millionaires, many of them multi-millionaires, who have amassed these fortunes in a few years past, remarkably few of them have felt the slightest urge incumbent upon good citizenship so far as equitably distributing their gains where they would do good. The oil men who have amassed a fortune and who left anything by which they may be remembered with pride and gratitude may be counted on the fingers of one hand, while those whose tastes ran to race horses, wild and extravagant and useless living, of whom many are now in a rather bad plight, will run into the scores.

Some years ago Dr. L. J. Moorman, when president of the Oklahoma State Medical Association, suggested that a permanent commission be formed for the purpose of creating interest in the formation of endowments furthering the construction of hospitals, etc. Some of our new rich have wasted, merely to gratify a silly vanity, enough money on one useless, farcical project to have erected and for a long time maintained, small decent hospitals practically all over the unsupplied area of our State. This habit of amassing millions upon millions and passing from the stage with a silent record of not one penny to the needy has been noted by more than one person; it has filled one well known historian with "contempt and disgust", however, under our Constitution and laws the holder of wealth is the sole arbiter of its distribution until he dies, after which the State may or may not get it. It is regretable that they cannot see the great good they might do while living.

**ORTHOPAEDIC SURGERY**

Edited by W. K. West, M.D.  
520 Osler Building, Oklahoma City.

"Comminuted Fracture of the Lower End of the Humerus Involving the Articulation"—Imperative Traumatic Surgery—C. R. G. Forrester, D.M., Page 81.

The diagnosis on these cases can usually be made from the evidence of deformity, marked swelling, muscular spasm, and extreme pain, but the X-ray should be used to confirm the diagnosis and assist in the manner of reduction.

An immediate operation should be avoided because callus always forms rapidly in this part of the arm and when interfered with surgically it is markedly stimulated in growth. This rapid formation of callus, accompanied by immobilization of the elbow joint, results, as a rule, in almost complete ankylosis. It may be necessary, when the patient is first injured, to manipulate the arm a little to lessen the pain and discomfort, but attempts at complete reduction should be very carefully done.

In some cases where there is not much comminution, the arm may be put in the Jones' position of hyperflexion with supination. When this method is used one should be very careful after reduction is made to see that there are full pulsations of the radial and ulnar arteries. If these pulsations are not felt the arm should be extended until they are. Otherwise, there will be in a few days a cold, numb hand and later a variable degree of gangrene ending with sloughing or a typical Volkmann's contracture or ultimate amputation. In the case of a well-muscled man, intense pain, due to interference with circulation, prevents the Jones' position being attempted.

However, the elbow may be flexed at right angles and gradually brought up every third or fourth day, thus avoiding muscle cramp.

In case an open operation is indicated it should not be attempted until ten days or two weeks, at the end of which time the swelling will be sufficiently reduced. The best approach to the joint at the time of the operation is an inverted horseshoe incision above the elbow, being careful to hold to one side the ulnar nerve, then completely severing the triceps tendon. Open operation should be avoided as far as possible, but in either case, after the swelling subdues, a plaster cast should be applied which extends from the armpit down the elbow joint and continues about the elbow to the wrist, with forearm in full or mid-supination, thus relaxing the pronator radii teres muscle.

Bohler claims and demonstrates that the position of mid-supination to pronation with the elbow at right angles takes the pull off the internal condyle of the humerus, thereby preventing valgus deformity and rotation of the internal condyle of the humerus.

In these cases some degree of permanent limitation of motion is expected. A period of total disability of four to six months should be expected. In cases in which the X-ray shows considerable comminution about the groove of the ulnar nerve, the physician should be guarded in his prognosis, since it is possible the encroachment of callus on the nerve may cause a mechanical pressure paralysis. In cases in which the ulnar nerve is definitely involved and is transplanted to the front of the elbow, the disability period may be lengthened by a year and a half to two years or longer.

Arthroplasty should be considered where bony ankylosis develops.

**"Birth Fractures of the Humerus."** By Edward D. Truesdell, M.D., New York City—Birth Fractures and Epiphyseal Dislocations, Page 31.

This author's report covering six years in the New York Lying-In Hospital records 39 fractures of the humerus in 37 infants. In two cases both humeri were fractured.

These fractures were caused by some form of operative or forcible delivery. Twenty-four were produced during breech extraction following version, and six occurred during breech presentation. Seven cases were attributed to difficulty with the arms at the pelvic outlet in vertex presentations, while in two instances the cause of fracture was never ascertained. These fractures are practically all transverse and in the center of the shaft of the bone.

The treatment is simple, using adhesive plaster swathe. A dusting powder is applied to the axilla. A square of folded gauze is placed beneath the arm and adhesive as broad as the distance from the point of the shoulder to the tip of the elbow. The injured arm and forearm are then firmly fixed against the chest wall. The bandage remains intact for three weeks, then is removed.

All cases healed, but the results were not altogether satisfactory during the first few weeks, because in a majority of the cases there was some angulation which resulted in a crooked upper arm. It has been found that in spite of a mal-union which has been caused by the failure of the arm to be maintained in the correct alignment, after several weeks' time nature will gradually straighten the affected bone. Therefore, parents may be correctly advised when a favorable prognosis is given.

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**UROLOGY and SYPHILOLOGY**

Edited by Rex Boland, B.S., M.D.  
1010 Medical Arts Building, Oklahoma City

**Spontaneous Ruptures of the Spleen after Malaria Inoculation.**

Jutz and Jacobi describe (Munchener Medizinische Wochenschrift, March 6, 1931) the case of a mason thirty-nine years of age suffering from tabo-paresis, who was treated by malaria inoculation.

After six paroxysms which ran smoothly enough over a period of about fourteen days, he had a sudden collapse during his seventh chill, and died in a few minutes.

At autopsy an enormously enlarged spleen was discovered to have been ruptured. There was no histological evidence of previous disease of the spleen and it is certain that no traumatism to the spleen had occurred. It is worthy of note that this patient was inoculated with a strain of malaria recently received from Hamburg. This same strain had already caused a very severe type of malaria in another patient. In fact, it had ultimately proved refractory to quinine. It is, of course, possible that its virulence had been in some way increased, possibly by the passage through individuals and the strengthening of its resistance to quinine through insufficient dosage.

**Urethral Strictures and Marriage.**

E. Langer (*Annales Des Maladies Venerinnes*, March, 1931) believes that a very thorough examination of the urethra is made before medical permission for marriage is given. The presence of a stricture is still a source of infection the author believes, and it should be eliminated before marriage may be undertaken successfully. Aside from infection the spermatozoa are likely to be damaged by the stricture and fecundization be prevented, a very undesirable accident in marriage.

**Abortions in Russia.**

From the reports in recent literature it seems that there are other conditions to oppose the wholesale abortions of Russia. Many of these cases are appearing in the German clinics and there seems to be considerable damage both physically and mentally even in cases where no inflammatory conditions existed. It therefore seems that there are other reasons than moral why this practice will not be popular in America.

The Urologists of Oklahoma City have met and formed the Oklahoma City Urological Association, the purpose to discuss urological problems and present scientific materials for study,—now we ought to get some pearls of urological wisdom right off the bat. Already we have picked up the following opalescent gems:

Treat the individual, not the disease.

There is no "standard" treatment for syphilis.

Every case is general, by the time a diagnosis is made.

Every case must be treated to saturation for the best effect.

The Wassermann should only be regarded as another symptom.

Next winter the writer hopes to pick up an abundance of material as the outgrowth of the above association.

That every case of syphilis is general by the time a diagnosis is made does not seem to be generally understood, but if we will just keep in mind the fact that the primary lesion is not a sore in the ordinary meaning, but it is a lesion and due to the treponema-pallida having burrowed down to the nearest lymph node and the process of propagation started, nature then begins the attempt at the walling off process, plasma and connective tissue cells are brought to the site in great abundance piling upon each other until the surface is reached when the skin or mucus membrane breaks down from pressure, this ordinarily takes about three weeks and while this is going on the infection is picked up by the blood, lymph and surrounding lymph nodes, thus at even the earliest "dark field diagnosis" the disease is general. It is true the spirochete has not had time to burrow itself into the peripheral lymph nodes or vessel walls and is easier to eradicate, but never the less it is a generalized infection.

**CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW****Newer Methods in the Treatment of Syphilis.**

M. H. Parounagian in evaluating (*New York State Journal of Medicine*, March, 1931) the newer methods of treating syphilis, comes to the following conclusions:

He believes that arsphenamine is the drug of choice in early syphilis of young robust patients. He prefers neoarsphenamine in elderly people, pregnant women, children, and patients with cardiac, kidney or other complications.

He finds that silver-arsphenamine is valuable in neurosyphilis, extensive gummatous ulcerations, in anemic subjects and those who do not tolerate other arsenicals. He also favors this product for the provocative test. Parounagian holds that mercury should always be a part of the therapeutic attack on syphilis, the physician making a careful choice of types of product and dosage.

If mercury is not well tolerated, bismuth should be substituted. Bismuth is also indicated when a suspicion arises that the patient is arsenic or mercury fast. He has had good results with colloidal bismuth in tabes and congenital syphilis.

The iodides are employed in all types of infiltrating lesions such as deep seated secondaries and gummatous deposits.

Either our idea of "Newer Methods" is different, or the author of the above must have had trouble in finding a title for his paper. The conclusions that he comes to are very good, therefore quoted.

**Syphilis of the Neck of the Uterus**

Puente states (*Bruxelles-Medical*, February 8, 1931) that chancre of the uterine cervix is probably much less common than chancres of the external genitalia. Fournier for example, among 249 genital chancres found only 13 chancres of the cervix, that is 5.2 per cent. The condition is, however, sufficiently common to warrant a careful investigation of every diseased cervix.

Induration in this region is difficult to detect, and the regional lymphatics are not easily accessible to the examining finger, so that their involvement can often not be demonstrated.

The chancre may appear as a simple ulcer or there may be an overgrowth of granulations, making it look like a rounded out papule. Again there may be no defect of the mucous membrane, but merely a diffuse edema of the cervix. In such cases the chancre is possibly situated within the cervical canal, but all cases of edematous cervix should be under suspicion.

The author cites the work of Gellhorn and Ehrenfert, published in 1894, which he considers very complete and which he has used quite constantly in the preparation of his own material.

The chancre is generally found on the external aspect of the cervix and on the anterior lip. It is rare that the lesion extends into the cervical canal.

The author states that it is relatively easy to find the spirocheta-Pallida in all chancres of the cervix. The important thing therefore is to recognize the indication for making this examination.

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R. N.

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## POISONING FROM NATURAL GAS AND ITS COMBUSTION PRODUCTS

W. B. NEWELL, M.D.  
ENID

Natural gas as we have it coming from the wells in Oklahoma is made up of a mixture of Methane, CH<sub>4</sub>, and Ethane C<sub>2</sub>H<sub>6</sub>. These are gases at ordinary temperatures. Hydrocarbons of a higher weight than this are liquids or solids at ordinary temperatures. Gasoline and kerosene are the lighter forms next to natural gas. Some of our gas however is very heavy in gasoline, of which ethane is a principal part, and the symptoms of gasoline vapor poisoning seem to dominate in natural gas poisoning. Methane itself seems to be a rather inert gas with no odor. Its presence has been demonstrated in old wells and mines by the extinguishing of a lamp. There is little effect produced by methane other than a deficiency of oxygen. Ethane or gasoline fumes, however, produce the toxic results.

Inhalation of gasoline fumes has been tried by several experimenters at various times (Haggard and Felix) and it has been found that breathing ten to fifteen grams of gasoline in eight minutes causes dizziness, nausea and drowsiness. Inhalation thirty to forty grams in ten to twelve minutes produces anesthesia. Tested on dogs it was found that breathing a dilution of 85 parts to 10,000 of air caused drowsiness, and if the concentration is increased to 156 parts the animal would fall. Recovery followed when removed at this moment after a few clonic spasms. A dilution of 192 parts caused the dog to lose consciousness and recovery followed after several convulsions. One dog died when a concentration of 243 parts to 10,000 was reached.

Men sent into tank cars without the proper protection, often exhibit symptoms of mild mania, and refuse to leave the tank. They shout, sing, and often lose consciousness before they can be forced out. They seem to lose their reasoning

power. Their pulse is rapid, then slow, temperature falls and skin becomes cyanotic. Some die from the exposure in spite of the fact that oxygen may have been supplied at the same time they received the gas fumes.

From the bureau of mines (tech. paper 272 Jan., 1921), we have a statement that they have found a 2½% gasoline vapor with a high per cent of oxygen would make one dizzy, and soon become intolerable.

Natural gas is piped into our homes under a pressure of four to six ounces. Users are very careless in connecting these pipes to their fixtures and leaks are often the result. Breathing this gas has the same effect on the economy as the fumes of gasoline. At first there is a little dizziness, and possibly a headache. Next a feeling of numbness and analgesia, followed by anesthesia, and unless removed from the atmosphere of the gas convulsions, unconsciousness, and death follow.

Recovery is prompt when patient is removed, but headache and a wretched feeling follow, and continues for one or two days. In severe or prolonged gassing various late nervous effects are reported, such as weakness of the legs, vertigo, nystagmus, and tremors.

Complete combustion of the gas produces carbon dioxide and water. If the mixture is imperfect or combustion incomplete from any cause we will have carbon monoxide, and possibly some free gas.

Carbon dioxide poisoning may play a part in these poisonings in the home. It will produce unconsciousness and death if the patient is allowed to remain in its atmosphere. The excessive air hunger and closeness will make itself felt and one will endeavor to get away from it as soon as he begins to get the effect. Convulsions will develop with carbon dioxide poisoning, but the absence of oxygen seems to be the greatest danger. If there is plenty of oxygen present carbon dioxide gas will not harm, since its union with the hemoglobin is not as stable as that of oxygen.

When the combustion of the gas is incomplete and carbon monoxid is formed it is breathed and absorbed at once since its combination with hemoglobin is 300 times as strong as that of oxygen. Small amounts in the air will thus affect one even with large amounts of oxygen present. We are finding however that this compound is not as stable as was once thought. We are more or less constantly exposed to small quantities of the gas. In New York, New Jersey, tunnel ventilation is so arranged that the users will not be exposed to more than 4 parts of carbon monoxid to 10,000 of air for the thirty minutes' passage. Shumway, in 1925, reported that carbon monoxid was affecting foot policemen and that relief periods was necessary. In 1926, A.M.A. Journal, Shumway stated that eight hours on the street directing traffic caused 30% saturation of the blood but that overnight elimination was sufficient to completely fit the policeman for duty again.

One carries three times as much oxygen as the body needs normally at rest. Exercise causes us to use up to two-thirds of the quantity, but one can easily lose the reserve one-third before he realizes that anything is wrong, and may collapse on attempting exercise. Collapse at rest will require a loss of at least half the oxygen reserve. Continuous work in an atmosphere of one part to 10,000 is not dangerous, and one part to one thousand can safely be breathed for 2½ hours, so this reserve oxygen gets into the blood to some extent even in the presence of carbon monoxid.

This gas has no odor. It does not irritate the lungs and is not detected by the average person until he experiences fullness and an aching throb in the head. Lachrymation, blurred vision, weakness of the knees, followed by pain in abdomen with nausea, severe cramps and collapse come so fast that he is often unable to escape his fate. Dullness of the mind developing often causes the sufferer to overlook the earlier symptoms and he will be found prostrate upon the floor from exertion in attempting to escape; this attempt causing a faster absorption of the gas. On removing a patient thus overcome to cold air convulsions and serious nerve strains follow. It is best not to allow the body to be chilled, but because carbon monoxid tends to cling to the clothes it is often best to remove these and shake the gas from them.

Acute poisoning may be instantaneous or very similar to a stroke of paralysis when a high concentration of the gas is breathed. One inhalation may carry enough to fix the hemoglobin. This is not likely however in the homes

After gassing with carbon monoxid respirations are stertorous, rapid and deep. The face is not cyanosed. Pulse is rapid and of good quality. When he lapses into unconsciousness he will usually remain so two to eight hours after removal from the gas, awaking with a very severe headache which passes away very slowly. Some, however, pass into a maniacal delirium. Vomiting and involuntary evacuations may follow. Sleep may often have to be induced. Weariness and lassitude follow, but most of the sufferers have completely recovered in seventy-two hours with no after effects.

Many state that the appearance of one dead from carbon monoxid gas is one of health: The victim has a rosy red color. Others state that a livid blue with red blanches is the color shown. Both conditions are admissible. Hemorrhages often occurring beneath the skin.

Many mild cases of carbon monoxid poisoning come to the physician. They have headache, dizziness, possibly nausea, and delirium. These conditions may occur and reoccur without the cause being determined. Luden, in March 1921 Nations Health, reports such a case in his own family. I believe we are often consulted for such mild cases of gassing without realizing the cause.

In Prussia the opinion has been given that those who survive severe carbon monoxid poisoning sooner or later become mentally affected. They speak of this as the relapsing form, and it resembles closely some type of accident neurosis. Neuralgias are present, nervousness, insomnia, pain and intense tremors. Poor memory may be present. Partial paralyses and occasionally insanity may occur. These conditions occur in the severer cases and those advanced in years. Borman, in American Journal of Psychiatry, July, 1926, reports such a case that developed various nervous manifestations including spasticity of muscles, athetoid movements, incontinence of urine and a cloudy sensorium. These conditions gradually clearing up until mental cloudiness, irritable temper, and silly actions previously contrary to his make up was all that remained permanent.

Cases are also reported that left symptoms of encephalitis, including the Parkinsonian syndrome, that was present three years after gassing.

Examination of the blood of patients poisoned show carbon monoxid if examined within three hours but the blood cells do not seem to be affected. In the chronic type the important finding is an increase in the number of red cells to as high as seven and a half million to the cubit millimeter, and an increase in the eosinophiles. The cells are ready to take up their function as soon as the oxygen is supplied.

Bronchopneumonia or pulmonary edema are often found in victims of carbon monoxid. Many hemorrhagic spots are found over the body and throughout the brain and internal organs. The most characteristic lesion is in the corpora striatum, especially in the lenticular nucleus. Here we find thrombosis with softening. This same lesion may also be found in gasoline and natural gas poisoning.

Treatment of gas poisoning should begin with prevention since this is the best method we have. Leaky pipes are almost inexcusable. Then the adjustment of your fixtures should be correct. When these two things are done it is well to see that there is a vent to carry off all fumes, and that no down draft will bring these fumes again into the room. Cold air on the outside is liable to set up a down draft in a flue that is too large for the fixture, and if other openings are present in the flue the gasses will enter by that route. When two furnaces are using one flue the down draft may return through the one that is cold. Chimneys are often filled with soot and debris, and the vent you have thereby is of no value for waste gases. For other fires it might suffice but gas is driven in. With wood and coal a draft is necessary before a satisfactory fire can be had.

All kinds of inhalation poisoning demand first a supply of pure fresh air. In natural gas and carbon dioxide poisoning this is enough of itself, but with carbon monoxid a mixture of carbon dioxide and oxygen is advisable to hasten assimilation of the oxygen. The patients must be kept warm to avoid convulsions. Gases must be shaken off the sheets, and with carbon monoxid this is very important. Stimulants of which camphor in oil is possibly the best, may be given. No patient should be left alone after slight gassing for fear of a possible collapse, and violent

exercise must be prohibited for the same reason.

If one is discovered after breathing has ceased, artificial respiration should be employed at once and continued until breathing is established or one is certain life is extinct. A recent suggestion made by Dr. Babcock of Philadelphia, to stick a wisp of cotton on the nose to make sure that your method of artificial respiration is actually producing results, is a good one.

I feel that the late complications involving the nervous system is the most serious part of gassing. The immediate effects are over in a few days at the most but when damage is done to the nerve centers there is no way of curing the condition. Encephalitis has been given as a diagnosis for these late conditions.

In concluding, I want to emphasize the great need in our modern homes—more care of raw and burned gases. We are too prone to minimize the dangers of gas and burn stoves of large and small size without any flue at all. Very often we are called into homes where the sick patient is breathing burned gases from heaters that are poorly adjusted.

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#### "SANE" OBSTETRICS

H. J. Epstein and A. J. Fleischer, New York (Journal A. M. A., July 25, 1931), believe that the expectant mother should have the benefits of "sane" obstetrics, rather than conservative or radical obstetrics. Such "sane" obstetrics can be maintained within the sphere of the incompetent though sincere physician and of the competent though overenthusiastic physician, by education of the former as to his limitations and of the latter as to the limitations of his modus operandi. The full cognizance by these two groups of the "obstetric risk" as an actual reality rather than a mere fantasy will temper their judgments, so that the incompetent will not plunge where angels fear to tread, and the overenthusiastic will not belabor the expectant mother with heavy artillery where diplomacy will serve better for her ultimate salvation. The obstetric risk in the authors' study shows that: (1) The morbidity risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 5:1. (2) The mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 30:1. (3) The total infant mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 3.6:1 (including spontaneous deliveries of macerated fetuses, premature infants and monstrosities). The mother of today is as fully equipped, mentally and physically, to undergo the hardships of labor as was the mother of yesteryear. A sound realization of this fact, together with a full cognizance of obstetric risk, will diminish the search for new fads to shorten labor and thereby result in a diminished maternal and infant morbidity and mortality.

## ACUTE AND CHRONIC ANTRUM PROBLEMS

WM. MITHOEFER, M.D., F.A.C.S.  
CINCINNATI, OHIO

In the consideration of this subject, I am well aware of the fact that some of the points brought out will not meet with general approval, inasmuch as I know there are many present here today, who treat chronic antrum disease in a conservative manner. There are some who depend largely on the correction of a nasal obstruction; there are others who attempt with intra-nasal antrum surgery, to relieve the patient of a chronic disease of the antrum mucous membrane by the establishment of ventilation and drainage. There is, however, an increasingly large number of oto-laryngologists who believe in attacking the problem in a more radical manner. I belong to the latter class.

To remove antrum pathology by relieving nasal obstruction is impossible. It is simple enough to correct a deviation of the septum, but this does not necessarily mean that the patient is going to be permanently relieved of a nasal obstruction, when there is present a chronic antrum disease. The chronic turgescence of an inferior turbinate very often produces the same amount of nasal obstruction as a deviation of the septum. The turgescence of the turbinate is many times the result of the chronic infection of the antrum mucous membrane, in view of the fact that the blood vessels of the turbinate and the antrum mucosa communicate.

Intra-nasal window resection of the antrum probably rarely, if ever, does away with true hyperplasia of the lining mucosa, but may be of considerable benefit when there is present an empyema of the maxillary sinus without hyperplastic changes. Intra-nasal window resection under the inferior turbinate is not, in our estimation, as good a procedure as an opening made in the supra-turbinal region. This latter area is along the path of the inspired air, and a large opening in this region will give better ventilation to the cavity of the antrum, than will an opening made under the inferior turbinate. We must also remember in this connection, that an infra-turbinal opening is not always at the lowermost portion of an antrum, on account of the antrum floor being many times, especially in men, on a much lower level than the nasal floor.

Some of our most brilliant results have been obtained through radical antrum-ethmoid surgery. In doing a radical antrum operation, we rarely confine ourselves to the antrum alone. The ethmoid cells are so often involved that we deem it advisable in all cases, to at least investigate this area. In some cases, we go a step further in our procedure, and remove the ethmoid labyrinth completely through an external incision. We are firmly convinced that there are very few patients in whom the complete removal of the ethmoid cells can be accomplished intra-nasally.

Pliny the Younger said, "That disease is most serious which proceeds from the head." We may add, "That disease is most difficult to cure which proceeds from the nasal accessory sinuses." In the study of these affections, one must always look for the chief offender—in other words, the master sinus; and until this is found and properly dealt with, success in the treatment will not be forthcoming. The master sinus is usually found to be the antrum; although occasionally it may be the cells higher up that are at fault.

One of the first problems that confront us is the problem of prevention of antrum infections. General and local measures must be instituted in order to prevent any infection of the upper respiratory tract. There is no question in our minds that an endocrine dysfunction is very often the cause of repeated infections of the nasopharynx. We refer chiefly to the hypothyroid state. This condition is, as you know, associated with infiltration of mucous membranes; and, in consequence of the mucous membrane infiltration, there is a lowered vitality and a susceptibility to infection. Hypothyroidism is very often present in children, and should be given consideration in the treatment of those children who suffer constantly with a cold. We make it a rule to give children who have a history of repeated colds with nasal sinus infections, a quarter of a grain of thyroid at bedtime, increasing the dose, if necessary. In adults who have a low basal metabolic rate, slow pulse, subnormal temperature between four and six in the afternoon, are constipated, and show other signs of hypothyroidism, we also institute thyroid therapy, beginning with a small dose, and increasing gradually until the affects of the drug become manifest.

We also believe that chronic intestinal toxemia is a frequent cause of infection of the upper respiratory tract. There are

many individuals who suffer with chronic intestinal toxemia, and it behooves us, as oto-laryngologists, to prescribe the proper diet in these cases. We do not believe that a diet containing much roughage is of benefit in these cases, and prefer to give the patient a so-called "smooth" diet.

The skin is considered the greatest immune organ of the body, and we therefore heartily recommend baths, massage, and ultra-violet radiation to stimulate the action of the skin. Sea-salt baths for children are especially beneficial; and a Turkish bath and massage once or twice a week has given many of our patients, who have a susceptibility to colds, immunity for a long period of time.

Allergy is now occupying the attention of many oto-laryngologists. It behooves us to give this subject the consideration it deserves; but, after all is said and done, we are still rather ignorant concerning the various manifestations of this idiosyncrasy; and have not been able, in the treatment of allergic diseases, "to look beyond the mist that fills the valley." We have been rather disappointed in the use of autogenous and stock vaccines for the prevention of upper respiratory infections. There are some individuals who are benefited; but it is questionable in our minds, whether they receive their benefit through a non-specific or specific immunity, inasmuch as we have seen the same results obtained occasionally after the use of a non-specific protein therapy.

We might mention in passing that correction of nasal obstruction, removal of infected adenoid tissue, and occasionally, a conservative intra-nasal ethmoid operation will be of benefit to a patient who has had repeated attacks of antrum infection.

One of the most important problems confronting us, is the treatment of an acute inflammation of an antrum. In the first place, let it be said that we would earnestly advise that an acutely inflamed antrum be not irrigated during the first three days. Rest, proper elimination, light therapy, internal administration of phenacetin, aspirin, and codein after meals, and hydriodic acid before meals, and the application of Bier's hyperemic band around the neck, at least twelve hours out of the twenty-four, are to be used. We prefer to give many of the patients an injection of omnadin for three successive days prior to lavage of the antrum, in order to bring up the non-specific immunity of the individ-

dual. Omnadin is composed of animal fat, lipoid of bile, and the protein of non-pathogenic bacteria. It does not produce an overwhelming protein shock; it is rather a teasing dose which stimulates cellular activity. We have seen an increase of leukocytes five hours following its use in many individuals. Most infections, as you know, originate in the pharynx and nasopharynx, and are associated with a leukopenia; therefore, omnadin which produces an increase of the leukocytes is strongly indicated in these infections.

The local measures which we are in the habit of using in acute antrum infections are the following: We prefer to use a cocaine-boracic spray which consists of eight grains of cocaine hydrochloride, twenty grains of boracic acid, to three ounces of water. This may be used every hour or two. It has a tendency to relieve pain, and at the same time to establish nasal respiration. We also do not hesitate, in cases associated with severe pain, to infract the middle turbinate. We do not approve of the use of argyrol tampons. Tampons act by osmosis, and ordinary saline solution will give the same results as the argyrol pack. Neither do we use suction because of the irritation which occasionally follows its use. In many instances, a slight puncture of the antrum may be made in the middle meatal wall with a Ritter sound No. 1, in order to attempt to ventilate the cavity or relieve pressure of the contained fluid. Change of posture may be used which will very often assist in draining the cavity. When severe pain is present, we have often found the application of 20% cocaine solution to the spheno-palatine area to be of benefit. This part of the subject may be summed up in a few words—namely, not to over-treat an acute inflammation of the nasal mucosa.

The problem of when to irrigate an antrum is an important one. As was said before, we do not believe in irrigating this cavity during the stage of acute inflammation; but prefer to fortify the patient with several injections of omnadin. Especially must we abstain from irrigating a cavity if the patient has fever; and never to continue irrigations if, following the first lavage, the patient had a severe reaction with chills and fever. Furthermore, we prefer to wait for a few days following the first lavage if there is a local reaction in the nose in the form of a fibrinous deposit at the site of puncture. Three deaths as a result of pyemia, follow-

ing irrigation through the normal orifice, have been reported from Siebenman's Clinic, in Basle. As you know, any number of deaths have been reported that were believed to have resulted from embolism.

The usual site for proof puncture of the antrum is under the inferior turbinate. We prefer the region of the middle meatal wall for puncture, and use the following solution which is Fischer's modification of Ringer's solution:

Sodium chloride .....	263.7
Dry Calcium chloride .....	21.0
Potassium chloride .....	10.6
Aqua dest .....	1000.0

Twenty-five c.c. of this stock solution are placed in four hundred and seventy-five c.c. of sterile water for irrigation. The calcium contained in this mixture has a tendency to relieve the oedematous, swollen mucous membrane of the antrum. It occasionally happens, however, that patients have a severe reaction from the use of any watery solution, and in these individuals, we have found an irrigation with ordinary sterile mineral oil to be less irritating. The oil mixture does not allow the liberation of the bacteria as easily as does the watery solution.

The method of irrigating through the middle meatal wall is easily accomplished. It is far easier to puncture, if necessary, a membranous wall, than it is to attempt proof puncture through a bony wall. Our first step is to examine carefully the topography of the part by using a Ritter sound No. 1, and proceeding from behind forward, along the lateral wall in order to ascertain, if possible, the presence of an accessory opening. We know that thirty-three per cent of the skulls have accessory openings; and it is advisable, therefore, before proceeding with the lavage to learn if the patient before us is one of these individuals. If there is no accessory opening, we proceed forward, and attempt to find the normal orifice. If this cannot readily be found, the Ritter sound is placed along the lateral wall, opposite the middle third of the middle turbinate, and in a direction from above downward, the wall is punctured. After the middle meatal wall has been punctured, a Siebenman canula is introduced. This is more easily done if the eye remains focused at the spot where the Ritter sound first entered the membranous wall. We have been able to irrigate about ninety-eight per cent of our antra with this method.

There are a considerable number of patients in whom the antrum infection is the result of an infection in the ethmo-sphenoidal area—in other words, cases in which the antrum is acting as a reservoir. In these patients, we are often able to relieve the secondary antrum infection by caring for the ethmo-frontal region—many times in the form of surgery, intra-nasal or extra-nasal. It is often very difficult to definitely state that an antrum is acting as a reservoir. Lipiodol tests may show no filling defect, or perhaps only slightly thickened membrane. We often make use of a tampon for purposes of diagnosis. The antrum is irrigated until the irrigating fluid returns clear. One or two tampons are then placed in the middle meatal region between the middle turbinate and the lateral wall in order to block off entirely the drainage from above. Six hours later, the tampon is removed, and if the same contains pus, we are certain that we are having drainage from above. The antrum is again irrigated. If the fluid is clear, we feel reasonably certain that the antrum is acting as a reservoir for the pus from above.

There is another form of suppuration in the middle meatus that very often simulates antrum disease. This is the so-called "hiatus suppuration," which was described by Gruenwald. In the inferior hiatus region, there is very often a large concavity of the lateral wall, which, when it becomes infected, may simulate antrum disease. In these cases, the fluid is usually clear until the end of the irrigation, when a large plug of muco-pus makes its appearance. When lavage of the antrum shows this plug of muco-pus to be present, we must think of the possibility of a hiatus suppuration, and not immediately look upon the antrum as the real offender.

The chief problem which concerns us, as oto-laryngologists, regarding the antrum, is probably the surgical method of approach. As was said before, the profession is undoubtedly divided into three classes: the conservative; the intra-nasal; and the extra-nasal. One thing is certain—before deciding on any method of operating, it is advisable to make a careful analysis of the case before us. This does not mean that we should spend weeks studying a patient with nasal polyposis. A diagnosis of antrum hyperplasia can be made within a few moments in these cases. I refer to the large number of borderline cases that are frequent visitors to the of-

fices of oto-laryngologists; and in whom it is very difficult, without a careful analysis, to make a diagnosis of a hidden focus in the antrum. If the focus of infection in the antrum is overlooked, and a simple intra-nasal operation is done, there will, in all probability, be present after operation, an acute flare-up of the chronic antrum disease. We have all seen an acute flare-up of a chronic antrum following a septum operation. It is our contention that it shows poor surgical judgment to do a septum operation in the presence of a latent antrum infection, unless the antrum is dealt with at the same time. If the case before us is analyzed carefully prior to operation, it may be necessary for us, at the time of doing a septum operation, to investigate also the condition of the interior of the antrum and the ethmoid cells. We have found less reaction after so-called "radical" surgery of the sinuses than we have found following the simple operative procedures in the nose. The reason for this is quite obvious. When all infected tissue is removed at the time of the first operation, there is less danger of reaction. A word of warning, however, is necessary. If there is present a purulent discharge in the nose, and culture shows a streptococcus hemolyticus infection, we should abstain from operation for a short time, unless urgent symptoms are present. In the meantime, the patient should be fortified with non-specific protein therapy; and, if necessary, an autogenous vaccine should be given.

The X-ray film and lipiodol instillation into the antrum are important and instructive adjuncts in the analysis of the case. It is wrong, however, to rely entirely on these findings. We have seen patients in whom X-ray was negative and the lipiodol test showed no filling defect, but the clinical examination made us feel that there was present a hyperplasia within the antrum. At the time of operation, marked hyperplasia was found in the various recesses of the antrum, with the cavity of the antrum free; therefore, the negative findings upon X-ray examination and the instillation of lipiodol.

When a radical operation on the antrum is contemplated, we should never finish with the same until we have investigated thoroughly the region of the ethmoid cells. We are firmly convinced that many times the ethmoid cells dip into the cavity of the antrum (cells of Haller) and these can only be reached through an opening made in the canine fossa.

The operation itself should, if possible, be done under local anesthesia with blocking of the nerves in the posterior palatine canal, in the region of Meckel's ganglion, and along the lateral wall of the nose opposite the middle turbinate. The gingival margin should be infiltrated. We are in the habit of using a solution containing:

Novocain .....	0.5:1.0
Solution potassium sulphate.....(2%)	20.0
Solution sodium chloride.....(0.9%)	100.0
Adrenalin gtt. ....	1 to 4.0

The addition of the potassium sulphate to the novocain solution enhances the value of the novocain, with a longer anesthetic action following operation.

The incision should be made as low down along the gingival margin as is possible. An incision made higher up may cut the buccinator gland and may give rise to infection in this gland. There is, furthermore, less post-operative swelling of the cheek when a low incision is made. Sufficient bone should be removed from the fascial wall in order to get a good view of the cavity. If possible, a part of the anterior inferior wall should be retained, in order to prevent cutting the anterior dental branches. The bone should be removed, however, in the anterior upper angle in the region of the prelacrimal recess. This part of the cavity is very often overlooked, and if the infection is not thoroughly removed from this area, continued discharge following operation may be present. The cavity should not be curetted; instead, the hyperplastic membrane should be elevated. Occasionally, one must use gentle curettage in the region of the recesses. Before finishing the operation, small laryngeal mirrors should be placed in the cavity of the antrum, and every angle carefully inspected. If the ethmoid cells are involved, as they usually are in hyperplastic cases, the greater portion of the middle meatal wall should be removed and the ethmoid cells exenterated. The middle turbinate, if it is not very much involved, may be preserved. A counter-opening, with or without flap formation, is the finishing step of the operation. When the radical antrum-ethmoid operation is completed, we have two counter-openings on the lateral wall, one above, the other below the inferior turbinate; and, if the frontal sinus is not at fault, healing will take place rapidly. We prefer to pack the antrum cavity with iodoform gauze for at least two or three days. We believe that this very often pre-

vents a saprophytic infection following operation.

In the after-treatment, little should be done during the first week. The patient should be relieved of pain, if possible. At the end of a week, the cavity is irrigated in order to remove any blood clot; and, if possible, we abstain from further irrigation unless a saprophytic infection has taken place. Each patient is given an intra-muscular injection of omnadin, each day for the first three days following operation.

We are probably all in agreement with the thought that nasal sinus surgery has fallen into disrepute. We cannot hope for good results in our surgery of the nasal sinuses unless we decide once and for all what sort of a position we are going to occupy in our method of operating. If we insist on being intra-nasal surgeons instead of extra-nasal surgeons, our results will not be gratifying. I have tried both methods, and am firmly convinced that unless a careful analysis is made of every case before us, and the sinuses radically dealt with, our efforts will very often be in vain.

On conclusion, I would therefore say, study each case well; do not attempt intra-nasal measures in the presence of marked pathological changes of the sinuses; and above all, by means of the various diagnostic methods at our command, look for the master sinus and eradicate the hidden focus present therein.

19 Garfield Place.

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#### MORE AND MORE DOCTORS USING DELICIOUS FOOD DRINK IN CASES OF MALNUTRITION

Cocomalt, the new chocolate flavor food concentrate, is rapidly gaining favor among the medical profession, as evidenced by its increased sale to hospitals and institutions.

Splendid results have been reported in general cases of malnutrition; but especially among children has Cocomalt convincingly proved its power to quickly add weight to the malnourished child. By actual test Cocomalt adds 70% to the caloric value of milk. Yet it is so easily digested, so readily absorbed, that it is acceptable even to the most weakened digestive system. Furthermore it contains malt enzymes which help to digest the starches in other foods.

The makers of Cocomalt particularly wish to remind doctors and nurses that Cocomalt is not a powdered chocolate, not a malted milk, not cocoa, but a scientific food-concentrate of high nutritive value.

#### EYE COMPLICATIONS FOLLOWING HEAD INJURIES\*

CHARLES H. HARALSON, M.D.  
TULSA

Head injuries form a class of cases that are difficult to classify and impossible to draw definite statistical conclusions, due to the difficulty of approaching a diagnosis, and the impossibility of comparing end results with the condition of the patient prior to injury.

The X-ray is a great aid in diagnosis but only too often when the surgeon opens up a skull he finds entirely another picture, which would justify the conclusion that a report of a negative Roentgenogram is of no more value than a negative Wassermann.

Traumatic psychosis, a much overworked diagnosis, has been used rather extensively to the detriment of the patient's welfare, then the ophthalmologist comes in for his share, by a perfunctory examination of the fundus through a small pupil, giving a negative report.

Head injuries either die or recover to the extent that they are dismissed as cured, often only to find that they are incapable of taking up the old routine of existence due to indefinite symptomatology, which is so indefinite that he does not know where to turn for relief, usually he consults a varied assortment of medical talent and acquires an assortment of glasses.

The ophthalmoscope offers an opportunity to observe the condition of the fundus, often giving valuable information to the surgeon as to diagnosis and progress of patient's condition. The presence of a choked disc when discovered early allows the surgeon to handle the case so that the vision can be conserved, as well as giving him direct information as to the progress of the case, making it possible to intelligently await developments or to proceed with surgery before it is too late.

When patient is conscious the visual fields should be checked for form and color, a contraction of the blue and yellow fields is suggestive of an involvement of the perceptive area of the retina, which may involve the conductive area and ultimately become a permanent defect.

\*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting Oklahoma State Medical Association, Oklahoma City, Oklahoma, May 11, 12, 13, 1931.

There is a marked divergence of opinion upon the treatment of these cases. From an eye standpoint I believe in a spinal puncture with a slow removal of spinal fluid, until there is very little pressure left in the spinal canal. I have seen two cases that had a temporal hemianopsia that spinal puncture cleared up the visual field defect in twenty-four hours, only to return the next day, at which time another spinal puncture was done with equally good results. It is my opinion that all cases of head injury who have swelling of the optic nerve or a progressive diminution of color fields, and who does not need intra-cranial surgery, should be given the benefit of as many spinal punctures as are necessary to effect a relief of symptoms.

The effect of the withdrawal of spinal fluid can be noted on the fields, when there is no evidence of pressure in spinal canal, it is rarely necessary to do more than three punctures to effect relief, which occurs along with improvement of general condition of the patient.

All head injury cases should be carefully checked on dismissal for visual field defects. If there is a defect present, the patient should be re-examined at regular intervals to see that it is not progressing, if so the surgeon should re-check the patient.

The muscle balance is often disturbed, causing difficulty in fusing objects which makes it easier for the patient to suppress the image than to fuse objects, ultimately losing binocular vision and visual acuity in the eye that is not being used. This can be avoided by the use of fusing exercises. I have seen several cases of amblyopia that gave a history of a concussion of the brain, which was considered of little importance at the time of injury, but which had not recovered from the muscle imbalance, consequently becoming an individual without visual perspective and with a narrowed field of vision.

To illustrate the importance of eye examination I report the following cases.

A. B. Age 19, injured in an automobile accident, April 5th, 1931. Diagnosis: Fracture in base of skull, radiological examination negative, patient in severe shock, pulse ranging from 58 to 70. Examination of eyes, pupils reacted to light and accommodation. Right eye media clear, fields for form and color normal, fundus negative. Left eye, media clear, retina clear. Blood vessels showed congestion of

veins, ratio of 2 to 1 to arteries, the optic disc was swollen two diopters, more marked in upper nasal segment, visual fields were normal except for enlargement of the blind spot.

A spinal puncture was done on the eighth day, the spinal fluid was bloody and under a moderate amount of pressure, the following day fundus examination revealed a decrease in venous congestion and swelling of the optic disc. The blind spot continued the same size. On the following day the left fundus examination was negative, and the blind spot was the same size as that of the right eye.

Thirty-two days later patient reported to the office for examination, complaining of diplopia and severe headache in frontal region. Fundi were negative, fields for form and color normal, media clear, vision 20-20 in each eye under homatropine, patient's vision was 20-20 with a plus .50 sphere. The muscle balance test showed an esophoria of 18 prism degrees, the image was being suppressed in the left eye. After three months training esophoria was reduced to 3 prism degrees, and binocular vision was present. Exercises were discontinued; three months later patient's muscle balance was normal.

Case No. 2. Age 23. December 1st, 1930. Hit over the right eye with a piece of pipe fracturing right frontal bone. The fracture extended back into the orbit, depressing the right eye brow one half inch, causing a severe contusion of the orbit and hemorrhage in the anterior chamber, which made it impossible to examine right eye. Patient was first seen three days after first operation. Left eye examination was negative, patient was unconscious, the X-ray showed only a small spicule of bone pressing down on frontal lobe. Patient was reoperated and a large piece of bone was removed, and the right supra-orbital ridge was elevated and brought forward and a drain was inserted into lacerated brain tissue. Patient's condition improved until the fifth day after the operation when he began to show signs of intracranial pressure. Examination of the eye revealed a choked disc in the left eye of five diopters, with a complete temporal hemianopsia, the right eye was still too clouded to get details of the fundus.

A spinal puncture was done, getting only a moderate amount of clear spinal fluid which when examined was negative. Two days later another puncture was done,

spinal fluid was still under no tension. However, thirty-six hours later the temporal hemianopsia had entirely disappeared. Unfortunately I was not able to see patient so that I could study the return of the color fields. The patient had an uneventful convalescence, reporting for examination at the office January 12th, complaining of diplopia.

Eye examination revealed the following findings: Right eye vision 20-60; pupil moderately dilated but reacted to both light and accommodation, lens and vitreous clear, retina showed a rupture in choroid in lower quadrant two and one-half disc diameters long. Otherwise, retina and blood vessels were normal. The temporal side of the optic disc was distinctly paler than the nasal side, there was no elevation. Visual fields were contracted on the temporal side for white, blue and red, there was a total absence of green perception in any quantity, under the strongest illumination.

Left eye, pupil normal in size and reacted to both light and accommodation, media clear fundus negative, no paling of the disc could be noted, fields for form and color were normal.

Refraction under homatropine improved the vision of the right eye to 20-40 with a plus .75 cylinder axis 75, left eye plus .75 cylinder axis 90; muscle findings were esophoria, two prism degrees, hyperphoria, six prism degrees.

Patient has been using right eye for a few minutes each day and had on April 20th visual acuity of 20-20 minus 2, and a hyperphoria of 1 prism degree with normal fields for both form and color.

C. D., age 24. Hit on right side of head by a piece of pipe, October 1929, was knocked out for a few minutes only and was treated by company doctor but was not confined to bed, had negative X-rays. The patient returned to work two months later but found that exertion caused severe pain in head, radiating from eyes back to occipital region, and occasional attacks of dizziness.

After repeated examinations he was hospitalized for observation. X-ray showed small depressed fracture of right parietal bone on line with a line drawn between the ears, about one inch from the articulation of the parietal bones.

Examination of eyes, November, 1930: Right eye: Vision 20-20, pupil regular, re-

acted to light and accommodation, media clear fundus negative. Visual fields showed a 25 degree contraction on temporal side, and the blue and red fields were the same size as the green.

Left eye: Vision on 20-20, pupil slightly irregular, reacted sluggishly to both light and accommodation, form field was contracted 25 degrees on temporal side. The color fields showed contraction of blue and red on temporal side, the green field was normal. The left eye deviated out about 10 degrees.

The skull was opened and areas of depressed bone was elevated, the dura was adherent and thickened under fracture.

Examination of eyes, February, two months later, showed the pupils regular, reacted to both light and accommodation, media clear fundi negative, fields for form and color normal and the muscle balance normal or 2 prism degrees of esophoria.

#### CONCLUSIONS

In conclusion I would like to emphasize:

1. The need of closer cooperation between ophthalmologists and surgeons.
2. The importance of complete eye examination in all head injuries.
3. Visual field findings are an aid to the surgeon in diagnosis and treatment.
4. Early diagnosis of muscle imbalance, makes it possible to institute corrective measures and effect relief in a large number of the visual complications of head injuries.
5. Brain injury symptoms are vague and indefinite, often taxing the diagnostic acumen of the neurologist to the utmost.
6. The stigma of malingering, and the diagnosis of hysteria should only be arrived at after complete examination of the patient.

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#### DIABETIC COMA WITH MARKED HYPERGLYCEMIA AND RECOVERY

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P. A. Gray and W. D. Sansum, Santa Barbara, Calif. (Journal A. M. A., July 25, 1931), report a case of diabetic coma with the marked initial hyperglycemia of 900 mg, per hundred cubic centimeters of blood. Recovery followed intensive insulin management.

## OCULAR SYMPTOMS AND COMPLICATIONS OF DIABETES MELLITUS

A. W. MCALESTER, III, M.D.  
KANSAS CITY, MO.

The essential factor of diabetes is inability to utilize sugar, rather than the over production of sugar, that is why we are unable to produce it experimentally without removal of the pancreas. The pathological changes in the pancreas are not constant with the severity of the diabetes. A very serious type of diabetes may show little or no pancreatic pathology, while on the other hand a low-grade diabetic might show considerable pathology in the pancreas. Changes in the blood vessels for the most part are atheromatous. The walls of the vessels of the eye and brain are much thinner than those of the corresponding size of the skin and muscle. When an atheromatous vessel ruptures, it bleeds quite freely, as it is stiff and hard and is unable to contract.

Getting to the ocular findings let us start with the skin. There is a condition of the body and lower lids known as xanthoma diabetorum, the nature of which is deposits of cholestral and other lipoids into the skin and orbicularis oculi unusually on the lower lid. An internist told me that he had recently had a patient with such large plaques that they interferred with his reading. The xanthoma we see is not always associated with diabetes as it is the type only found on the lids. Several dermatologists have told me that their findings were the same as ours, although the general practitioner associates this lesion with diabetes, especially when it is generalized over the body.

Styes and chalazions are sometimes seen in diabetes but they are mostly due to a recurrent infection. A vaccine is occasionally of some value. The best treatment we find for recurrent infection is persistent use of some type of eye wash four times a day from thirty to sixty days. We usually alternate between 1 to 8000 metaphan wash and 1 to 5000 bichloride of mercury, then changing to some other wash as boric acid, perhaps alternating these washes five or six times before the course of irrigation is finished. Ulcers and different forms of keratitis are rare.

Now, pure uncomplicated cases of diabetic iritis are extremely unusual and if they are not promptly treated and the pa-

tient does not respond promptly to the treatment the eye is usually destroyed. The ordinary type of iritis seen in diabetes is a more serious type with very little exudate put down at the pupillary margin. There is a marked tendency to hemorrhage. In fact, there are very few cases in our experience that do not have some degree of hemorrhage. The course of the iritis is long and resistant to treatment and there is a marked tendency to reoccur. You will most always find some other factor outside of the diabetes that causes this iritis, such as a tooth, tonsil, etc. I might further state that we most always find this iritis in people past forty years of age. Young adults and children rarely have iritis and when they do it is usually disastrous to the eye.

Amblyopia is sometimes seen in diabetes. The following case will illustrate this: A woman 54 years of age, weighing 280 pounds, had been fat the past twenty-eight years. The fat preponderence was that of a pituitary type. She complained of failure of visions for the past six months and only three months ago found that her urine was heavily laden with sugar, albumin and a few casts. On examination we found the visual fields in both eyes to be contracted to within ten degrees of the point of fixation, perception for color remained. There was an indistinct central scotoma. The fundus showed only that of a sclerosis with a slight fullness of the veins. There was no evidence of any intra ocular degeneration or inflammation. The first blood sugar was 430 milligrams. She was immediately sent to the hospital and a brain lesion and foci of infection was ruled out. At the end of 48 hours on diet her blood sugar had dropped to 216 and the vision greatly improved. During the next four days she was given ten units of insulin twice a day and the blood sugar dropped to 110, following a great improvement in the ocular condition. The central scotoma was present in the left eye but it practically cleared in the right eye. By the end of the twelfth day this woman's field of vision was normal and vision with her glasses on was 20-20 minus. Her vision when she first consulted us was 20-400 with her glasses on. The best explanation for amblyopia is the increase of toxic substances of diabetic metabolism, that is, acetone, diacetic acid and beta oxybutyric acid. Amblyopia is well known in all metabolic diseases. The prognosis is good when put under proper treatment, provided the am-

blyopia is not too long standing. A German writer reported eighteen cases of optic neuritis out of 486 cases of ocular manifestations of diabetes. It is always associated with some other infection just as iritis is and its course is very similar to that of iritis.

When ocular muscle paralyses are met with in a patient with diabetes always look for something else. Hyperglycemia and glycosuria and symptoms of diabetes are often found following encephalitis, thyrotoxicosis, diseases of the adrenals where there is an increased function, and hyper-function of the anterior lobe of the pituitary gland. Some of these cases, of course, are not true diabetes. The hyperglycemia being a compensatory type and insulin has to be given with great caution as a severe reaction might be encountered. As you know many eye conditions are encountered in goitre, especially of the extra ocular muscles. Some of these cases run a course similar to diabetes. The pituitary cases produce field changes and optic nerve pathology and some of these cases run sugar. The more common pathology of the ocular muscles in diabetes in our findings are spasm, or paralysis, or loss of accommodation. This is seen only when the blood sugar is high and is relieved immediately by insulin.

A patient in diabetic coma often shows a hypotonia of the eye ball. This is based on osmotic pressure. There are sudden variations in refraction noted in the young adults. I recently read an article reporting a case where there were five diopters changed in a few weeks, in a young diabetic. We have had several cases where the variation was as great as one diopter in a period of thirty days. The rapid variation and refraction is not the rule in diabetes past forty years of age.

Injuries about the head produce a rapid rise in blood sugar in a diabetic.

A case to demonstrate this was a laborer 34 years of age whose pick struck a part of a stick of dynamite. It exploded, blowing gravel and dirt into his face and eyes. I saw him in the hospital about two hours after the injury. He was cold and clammy; had a pulse of 120; being in a state of shock. He was cleaned up and the foreign particles removed without a general anaesthetic; no sight being destroyed. He was then put to bed; the urine was examined and found to be heavily burdened with sugar. He then told us that he was a diabetic taking ten units of insulin

twice a day; a blood sugar was run and found to be 210. He was immediately given ten units of insulin. The following morning another blood sugar was run before breakfast, about fifteen hours after the accident. The report came back 360 milligrams of sugar. He was then given forty units of insulin that morning and forty in the evening; the second day the blood sugar was down to 240 on a diet of 50 grams of carbohydrates, 70 of proteins, and 100 of fats. That day he was given thirty units of insulin in the morning and evening. Five days later he was able to maintain that diet on fifteen units of insulin twice a day. About a month later I received a letter from this man's physician stating he was sugar free on twelve units of insulin twice a day.

The two most common findings in diabetes are cataract and retinitis. Some physicians report a higher percentage of cataracts than of retinal changes, while others make the reverse statement. Of these two we will consider cataracts first.

The true diabetic cataract is seen most frequently in young diabetics. It may be precipitated after a diabetic coma, acidosis. Cases are reported of lens opacities developing in three months following acidosis. Some of these opacities in the lens clear up after treatment; this being practically the only cataract that responds to medical treatment. Diabetic cataracts always are bi-lateral. The cause is not sugar alone but some of the factors in faulty metabolism that give the upset. Diabetes in children and young people usually runs an extraordinarily stormy course due to the rapidity that they can go from insulin shock to acidosis. This is the reason why young people have cataracts. The type of cataract seen in a diabetic past 50 years is usually of the ordinary senile type. Let us remember and always be suspicious of diabetes being a factor in a patient under 55 years of age who has cataracts. The best explanation is vacuolization of the cells of the posterior surface of the iris with increased pigmentation, hence producing a disturbance of nutrition. The lens receives part of its nutrition from this area.

The operative treatment of cataract in diabetes is slightly more hazardous than that of non diabetic origin. However, I would rather be responsible for a patient with cataract and diabetes than one that has had a low grade cyclitis with deposits on the posterior capsule of the lens with

periods of quiescence. We always explain chances of complications to the patient before operating. They are kept in the hospital long enough to get absolute control of the blood sugar by a diet and insulin. We always want the urine sugar free and the blood sugar below 150, if possible. When this is accomplished and all of the foci of infection removed we take the patient to operation. Five per cent cocaine is used and 2 or 3 drops of adrenalin instilled into the eye. We never do any orbital injections of novocain as several serious disastrous results have followed, and especially where there is a hypertension and adrenalin is used in the novocain. We use as little adrenalin as possible in all cases of hypertension, and then only in the conjunctiva. We never operate on any cataract without some sort of a stitch. If the pupil will dilate widely we do a peripheral iridectomy. If the dilation is poor, a complete iridectomy is done. We practically always do a capsulotomy and irrigate the anterior chamber. The patient is kept on a soft diet for six or seven days and the blood and urine watched daily. I always like to increase the insulin five or six units to guard against any rise in sugar due to excitement, anxiety, or whatever shock may result from the operation.

Retinal lesions are more common in our practice than cataracts. It might be a fair estimate that they are at least three to one in comparison to cataracts. Since the introduction of insulin lipemia has become a rare finding. It is usually in cases that have been treated with diet and without the aid of insulin. The estimates of fat in the blood run from 4% to 8% before the retinal vessels show this characteristic picture. I have noticed in reviewing the literature that there are very few cases reported in the last ten years to what was previously reported before insulin was given to us. One of the most striking cases I have ever seen was in a young Hindu in the Government hospital in Delhi. The most frequent lesions in the retina are small white patches of fatty degeneration and scar about the macula. They are often only dots but later fuse together, sometimes giving the appearance of cercinate retinitis. Hemorrhage is frequently seen between these spots. It must be remembered that a nephritis whether it is active or inactive is invariably found in diabetes and it is often impossible to distinguish between retinal changes due to nephritis and to diabetes. Hemorrhage is another common finding. Some authorities give a

patient two years to live that have retinal hemorrhages. No doubt this is a terminal warning of the life of a diabetic as the vessels are usually sclerosed and the damage is already done and cannot be repaired, although if the patient keeps up the use of insulin and the blood pressure and kidney involvement are controlled I don't see any reason why they should not go perhaps as long or longer than any case with the same type of arteriosclerosis provided some intercurrent infection does not enter into the picture. When a foci of infection is present in a case of diabetes, destruction of vessels will be activated. It is well known that nothing destroys vessels any quicker than diabetes foci of infection, syphilis and tuberculosis.

We have watched a woman 58 years of age for the past three years. She first came in with a detached retina and a hemorrhage on top of the detachment and iritis. We were very suspicious of an intraocular tumor. At that time her urine was sugar free but the blood sugar was 178. She had several dead teeth that were extracted and the eye immediately cleared up. Her eye remained quiet for over a year, the eye findings showing no evidence of tumor. She again had a hemorrhage and iritis and a dead tooth was removed. She was urged to have a tonsillectomy but refused. The last of January of this year she had the third attack and iritis and further detachment. We were unable to make any headway with this last attack. She was sent to the hospital the first of March, the average blood sugar being 196 throughout the 24 hours and the urine being sugar free, the phthaline test for kidney excretions was very good. At that time she was taking twenty units of insulin a day with a diet of approximately thirty-five grams of carbohydrates, seventy of proteins and ninety of fats. Her insulin had to be increased to fifty-five units a day to lower the blood sugar to 160. Her iritis immediately began to clear up but the detachment was still present. A diagnosis was made of an exudate from a foci of infection plus diabetes, as no further symptoms of tumor developed, although we haven't forgotten the fact that tumor can remain quiet for a number of years.

In closing, I want to say, always look for something further when ocular conditions are found in a diabetic patient. A patient with such a disease where metabolism is so upset, becomes fertile ground for all sources of infection.

## IONIZATION

H. F. VANDEVER, M.D.  
ENID

In presenting this paper it is our desire to give briefly our limited experience with this modality. Hoping thereby to stimulate free discussion which may be beneficial to all.

The application of medicine by the process of electrolysis, when first presented to me, sounded just like "one more thing to try out." We presumed it would have the same results in our hand as diathermy, the ophthalmometer, and many other things, *namely*, the scope so limited that the results scarcely justified the means. We are not speaking disparagingly of these modalities except in our own hands. There are those who satisfy their requirements with every kind of instrument, apparatus, and medicine manufactured. There was a time when we had to have colored lenses to filter the actinic rays, because of their irritating effects, from the eye. Time has permitted science to disclaim their established fact in this particular and so time proves the falsity of many perfectly reasonable and apparently useful modalities in our armamentarium. This paper is presented with only one thought in mind; to help determine the true practical value and merit of ionization, as it is possible to use in our every day work.

We have used two solutions only in our work. Zinc chlorid and sodii salicylate. We doubt not there are many others that may be better and shall be glad to learn the way that any one may be successfully using them. The Zn. ion has many acclaimed virtues, which all of us are more or less willing to admit. The one most responsible for its merit in ionization is its affinity for albumin. This action has made zinc a popular escharotic for years by sealing the wound and in a measure sterilizing it. The Zn. ion has a so called predilection for diseased tissue, this we doubt, believing the action to be due to the lessened resistance of the pathological tissue, hence it is first to fall before any physio-chemical attack. The results are the same but some definite idea of the action we believe necessary to properly understand and explain the effects of ionization in the diseased areas. The current necessary to carry on effective ionization is a direct one delivering from 60 to 120 volts and capable of a milliamperc output of 40 to

50. The positive terminal should be marked so as to easily identify it, as either the positive or negative is used as the active electrode. In the application of Zn. the positive is used and in the application of sodii sal. the negative is used as the active electrode. There are many details as to the application of the electrodes to the parts to be treated; such as size of electrode, protection of diseased areas, proper insulation which can be obtained from any article or text on treatment by ionization.

We have used only two solutions in our work, zinc sul. sol. ( $ZnSO_4$  5 gms., glycerine 57 c.c.,  $H_2O$  q. s. 1000 c.c.) and sodii salicylate 2% sol. and a sodii chloride 1% used on the indifferent electrode. The above named solutions are all diluted with an equal amount of water before using.

We have employed sodii salicylate by this treatment in four cases of furunculosis external auditory canal. In every instance the patient slept the succeeding night when sleep had been denied the two or three preceding. In two cases the process underwent prompt resolution with recovery. The other two formed abscesses, were drained and promptly healed. The pain was inconsequential in the two abscess cases after the treatment.

The two antrum cases treated were flare-ups after the extraction of a tooth. They had both had trouble in the antra one and two years previous. No trouble in the intervening time. The dentist had treated both cases for about ten days. Both were discharging large quantities of pus and one had lost about twenty pounds in weight. Both were quite sick but neither were confined to bed. In the milder three treatments relieved the patient of all symptoms. The other, after two treatments three days apart was relieved of most of his trouble. In two weeks he returned complaining of odor and pus. We gave four more treatments and the patient hasn't had any trouble since, save when he takes cold, he is always afraid the antrum is going to flare-up. He says he knows it is there at these times and it aches a little.

In two cases of trench mouth three treatments in one and four in another cured them. The treatments were given daily.

In one severe case of eczema of both

external auditory canals, auricles and cheek in front of ear, one ear five years standing, the other two years standing, canals practically closed and weeping, our results were most gratifying. The patient had received all kinds of medical treatment from two ear, nose and throat men and their family physician, and ultra-violet from another, all to no avail. This patient was very indifferent as to regularity of her treatment. She did not continue treatments as long as we desired, but came into the office after six weeks had elapsed since last treatment with both ears entirely well and normal. I gave this girl a salve to use between treatments which may have had some influence on the course of the eczema.

We have tried ionization on several acute frontals making application directly over sinus with active electrode and have had very gratifying results. It relieves the pain admirably. Sodii sal. was used in these cases.

We have used it in three or four middle ear cases with questionable results. This should be the ideal location for this treatment, but as most of the cases of purulent otitis media are in children, we have not tried to make application to them. The cases referred to were what we chose to call chronic recurrent; they go for four or five months dry, then discharge a month or two. We doubt the effectiveness of any treatment save a mastoidectomy in such cases.

These were the cases we have tried to observe for trial and were highly pleased with the results.

We have used sodii sal. in all cases of pain and zinc when there was no pain and pus, both solutions in the eczema and also in others of the series.

Judging from our limited experience we are inclined to believe ionization has a place in the treatment of many poorly drained cavities, furunculosis external auditory canal, and many other diseases where low grade infections may be a causative factor.

We welcome your criticism, and urge you to give us your experience with this modality as to whether in your hands it has or has not been beneficial.

## TONSILS AS FOCI OF INFECTION\*

L. C. KUYRKENDALL, M.D.  
MCALESTER

Recent years have seen wonderful advances made in all lines of endeavor but more particularly in medicine. I think the greatest advance in medicine has come about through the study of focal infection and in that particular the head with its possible points of foci of infection has perhaps played the major role, especially in so far as the tonsils are concerned. There have been, of course, radicals who were able in their own mind to see in every tonsil examined a diseased condition and as a result enucleated these tonsils with the result I am afraid that many, many tonsils were unnecessarily sacrificed. I am sure that not all tonsils are diseased. On the other hand careful inspection reveals diseased conditions of the tonsils often times where only a perfunctory examination would not disclose the infected area. Much has been written on the subject of the tonsils as a foci of infection. Most of it timely and good, but I feel that we have only touched the surface as regard the tonsils.

The tonsils are evidently the basis or foundation of many complaints which heretofore have been obscure or their etiology been hidden to such an extent that it was impossible to determine the basis for the diseased condition. I have tried to maintain a neutral attitude toward the tonsils but recent years have shown me that possibly I have overlooked cases of infected tonsils because of too superficial examination of them. Not everyone I regret to say is able to make a real examination of the tonsils. The mere placing of the tongue depressor on the tongue and looking into the pharynx is not sufficient, but you must see the entire surface of the tonsil as well as expose to view the superior fossa and this can only be done by means of instruments devised for that purpose. A large tonsil or a small tonsil either for that matter does not necessarily mean it is diseased and that it should be removed. The age of the patient often determines the size of the tonsil, it being infrequent to say extremely large tonsils in a person more than 30 years of age. I do not mean to say that all young people have extremely large tonsils nor that

\*Read before the Southeastern Oklahoma Medical Association, Durant, Oklahoma, Wednesday, December 17, 1930.

everyone over 30 years of age have extremely small ones. We know the tonsils begin to atrophy immediately after puberty. Sometimes an atrophic change is rather rapid and by the time the individual is 30 years of age there is very little lymphoid tissue left. On the other hand we infrequently find quite large tonsils in persons as much as 50 years old. The eldest patient I have ever operated for the removal of tonsils was 74 years of age, the youngest 18 months.

There seems to be no class or sex distinction, in that the poor as well as the rich, male as well as the female, are about equally affected. Throughout the body lymphoid tissue is well distributed, being found in the mucous membrane of the alimentary and respiratory tract, the vermiciform appendix, Peyer's patches, the spleen and the lymphatic glands. Lymphoid tissue is a reticular connective tissue with a great many lymphocytes within the meshes.

The faucial tonsils are two in number. One on either side of the throat placed within the faucial sinuses and in their development each tonsil forms in two sections, the superior and inferior, which within a short time after birth coalesce to form one mass. It sometimes being difficult to determine the dividing line between the superior and inferior section of the tonsil. The superior pole of the tonsil often is placed so high in the substance of the soft palate that it is with difficulty that we are able to see that part of the tonsil, and in all cases except where the root of the tonsil is pedunculated the anterior folds cover the triangle of the superior part of the tonsil, in other words the supratonsilar fossa is hidden from view. Due to this condition it is the most important part of the tonsil to be seen in an examination and I do not think an examination of the tonsils is complete unless you have thoroughly examined the fossa.

The capsule is a compact, tough, thin membrane surrounding the tonsil on all sides except that part covered by the epithelium.

The crypts are solid epithelial sprouts which grow outward from the floor and the outer wall of each fossa and become hollow through the degeneration of their center cells. These horny plugs being gradually expelled leaving the walls of the crypts open. The crypts or rather the walls of the crypts usually are in apposition

with each other and normally are mere slits. They are seen as tubes and open only when they are infected and filled with exudate.

There are two types of tonsils. The pedunculated and the buried or retracted type of tonsils. This latter type has been referred to by some writers as the "button-like" tonsil in that the surface is flat and often smooth. The size of the root of the tonsil is determined by the type of the tonsil. The pedunculated having a small root while the retracted has a large root. The pedunculated type of tonsil is freely movable and comparatively easy of enucleation while the reverse is true of the retracted type. Because of the freely movable character and small root of the pedunculated type the Sluder Tonsillitome was perfected and in these cases it and its modifications are good types of instruments to use, but I do not think this type of instrument is applicable to every case of retracted tonsils.

A few years ago Dr. Canfield of Ann Arbor in speaking of the possible function of the tonsils made the statement that possibly the tonsils acted as a check-rein prohibiting a too rapid growth of the child. I am of the opinion this theory is correct, because of my observations of patients operated before as well as since I heard him make this statement. By way of clarifying and making more plain the theory of the check-rein action of the tonsil I can best illustrate by describing one of my nephews whose tonsils were removed about seven years ago. At the time of the operation this child was a "runt," in that he was decidedly under-developed and under-weight for his years. His father and all of his father's people were very small, his mother and his mother's people were less than average size. Today at eighteen years of age this boy stands about five feet eight and a half and weights 145 pounds and still growing. I am sure all of you can recall instances of the same character.

The chief blood supply of the tonsil is from the tonsilar and ascending palatine branches of the facial artery. It is a very vascular organ. It receives additional blood supply from the dorsalis linguae of the lingual, the descending palatine branches of the internal maxillary and from the ascending pharyngeal. The veins are of great importance as they may give rise to severe bleeding. They form plexus in the walls of the tonsilar sinus.

The lymphatics of the tonsils or rather lymphatic drainage of the tonsilar area are rather a complicated network. The afferent vessels lead to the tonsilar gland, a large gland placed just below the angle of the jaw and under the anterior border of the sterno-cleido-mastoid muscle. There are no afferent vessels to the tonsils, although it has been demonstrated that coloring matter injected into the turbinate bone of the nose, also into gums, has been found later in the substance of the tonsils. All of us have seen cases of acute tonsillitis following an infection of the nose.

Due to the fact that the tonsil is so bountifully supplied with blood and, also, the system of drainage of the lymphatics being so perfect it is easy to understand how infection in the tonsils might be carried and deposited in other parts of the body. I would like to report a few very interesting cases which illustrate, not only a careful examination of the tonsils, but their removal when found infected.

*Case No. 1.* D. S. Age 50. Married. Father of two grown children. Has never had any illness. Has always been healthy. Proprietor of a paint store. During this summer just passed he began to lose weight, became nervous and irritable, was unable to sleep and developed arthritic pains in his shoulders, back and lower limbs, it sometimes being necessary for him to take something for the relief of this pain. Later in the summer he developed sweating attacks each day about 4:00 a. m. He would perspire so freely it would be necessary to change the bedclothes as well as his night clothes. He was examined and was thought to be suffering with lead poisoning and was advised to go to Hot Springs, Arkansas, which he did. He spent three weeks in taking treatment and baths with no apparent results. He was referred to me about the first of August for an examination of tonsils. I found his tonsils undergoing atrophy and with great difficulty I was able to see the superior portion of his tonsils which was infected, in that there was a great deal of cheezy material, easily expressed from the crypts. Under general anesthetic his tonsils were removed. The sweats ceased immediately and did not reappear for about seven days when he again had a slight sweat. I did not see him then for about three weeks during which time he had progressed satisfactorily. About five weeks after the operation he developed a pharyngitis which again brought on the sweats. The

sweats persisted for about five days. Treatment of the pharynx relieved this condition. His arthritis gradually diminished and he tells me now that the only time he ever feels any of the former pains is when he is climbing or descending a long ladder. Four weeks after operation this man had gained 28 pounds in weight, his appetite was back to normal and he relishes his food.

*Case No. 2.* Mrs. D. M. Age 30. Married. Housewife. Mother of one child. Came to me in October of this year with a sciatic rheumatism of right sciatic nerve. This rheumatism had been present about four weeks. I found her tonsils large, pedunculated, and infected, it not being necessary to press on the tonsils in order to extract pus from them. On operation when the tonsils were grasped with vulsuum forceps a large quantity of thick, creamy, ribbon-like pus came out of the body of the tonsil. The next morning the patient told me pains of the sciatic nerve had disappeared. It has not as yet reappeared at any time.

*Case No. 3.* Mrs. C. V. K. Married. Age 38. Housewife. Mother of two children. Had numerous illnesses and two abdominal operations. I have treated her during three attacks of acute frontal sinusitis without pus. About five months ago she developed a bursitis of the left knee joint and the distal joint of right index finger which were quite painful. An examination of her teeth and sinuses by X-ray showed no infection. Her tonsils were medium in size and infected. Pus was found to exude from the tonsils when they were pressed. No other foci of infection was found. The tonsils were enucleated and as sometimes happens after enucleation of infected tonsils or extraction of teeth she suffered quite a reaction and the bursitis was aggravated, and more painful than before the operation. Seven weeks after operation the bursitis of both joints had practically disappeared and there was no pain upon movement.

*Case No. 4.* Mrs. F. B. Age 40. Married. Housewife. Mother of one child. Very fleshy. Had had no illness but six months ago was taken sick with chills, fever, and a period of profuse sweating often times having as many as three profuse sweats during the night. Had arthritic pains scattered throughout the body with some involvement of the gall bladder. The teeth were infected and were extracted about three and one half months ago from which she derived no benefit. The tonsils were

examined and the right tonsil was found to have quite an excavation in superior pole from which pus was seen to exude. The left tonsil exuded pus under pressure. The tonsils were removed and for one week the patient was free of sweats and four weeks after the operation the patient had had one sweat and one chill only. All of the arthritic pains have disappeared. The nervousness has about disappeared and the appetite has returned.

Often times it happens after the removal of infected tonsils that the condition for which you operated is aggravated, and when this occurs the recovery of your patient is of necessity slow and will sometimes be several months before the condition is entirely corrected. I am sure this is due to the fact that the patient has become so saturated with the toxins that they are very slow in eliminating them.

None of the above patients had at any time had attacks of tonsillitis. I have not gone into as much detail in the description of these cases possibly as I should, but I believe it will give you the idea I wish to convey. *Namely*, that the tonsils are most certainly the most important foci of infection within our body and I will venture this assertion that if the surgeon would go carefully into the history and carefully examine the tonsils of each patient with acute or sub-acute appendicitis he would find that the patient had had or was having an acute attack of tonsillitis and that the tonsils were infected. Don't misunderstand me and think I am advocating the cure or eradication of appendicitis by the removal of the tonsils, but bear in mind the close relationship of the anatomical nature of the tonsils and the appendix, and when obscure conditions arise or you are in doubt as to the etiology of the condition examine your patient's tonsils carefully and maybe you will find that for which you seek.

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#### TREATMENT OF CHOREA BY INDUCTION OF FEVER

Lucy Porter Sutton, New York (Journal A. M. A., Aug. 1, 1931), has treated twenty-four choreatic patients with intravenous injections of typhoid-paratyphoid vaccine as a means of producing fever. The results thus far have been good. There has been prompt cessation of the symptoms, and the course of the disease has seemed to be greatly shortened. In the cases reported the average duration after treatment was started was from eight to nine days. This treatment has been much more satisfactory than any other used at Bellevue Hospital on the Children's Medical Service. It appears to have definite advantages over phenyl-ethylhydantoin.

#### CASE REPORTS ON THE INTRANASAL OPERATION ON THE LACHRYMAL SAC

FRANK R. VIEREGG, M.D.  
CLINTON

One of the disagreeable things that I have had to contend with, especially from the point of view of end results, has been those cases of acute purulent infection of the lachrymal sac. The thing that disturbed me was the fact that although the cases are a simple infection of the sac I did not feel that I could promise the patient that they would not, sooner or later, have a return of the painful abscess, or that they would be relieved of the annoying flow of tears over the face and its attendant train of symptoms.

In their effort to relieve the patient of the oft repeated painful abscesses that they had, a great many men have advocated the destruction of the sac. This has been done in a number of ways—dissection and cauterization, either chemical or galvanic, being the chief ones. This of course has left the patient with a constant flow of tears over the face the rest of their lives. But this condition in itself has disturbed the medical profession for a great many years as is evidenced by the fact that even Galen attempted an operation to establish a new channel of drainage for the tears into the nasal cavity. Woolhouse, an English surgeon, in 1650 tried introducing a gold cannula through the bone to prevent the closure of an artificial duct. Since that time a great many other operations have been devised and judging from the descriptions of many of the laborious pains taking methods they should have been successful.

I have found by inquiry, however, that few of us in Oklahoma have been doing anything other than simple drainage or even letting the abscess take its own course and hoping that there will not be a return of the abscess and letting the tears take their own course. Three years ago a patient presented herself to me with a well developed acute muco-purulent dacryocystitis. She gave the usual history of tearing for years with an occasional flare up of the acute abscess condition. She asked if I couldn't do something so that she wouldn't be bothered any more. I did not like to admit defeat without a trial so I told her that I could if she would let me operate on her tear sac from the inside of

her nose. I hastened to add that I was busy just then and that she was in no condition to be operated on any how that day. (You all know the method, I wanted to try to find out what was best to do).

In looking up literature I have and the texts I found that some men advocated doing an external operation and some an internal operation. In the external operation they advocated making an elliptical incision on the side of the nose at the level of the tear sac. Then the sac was dissected up and the bone removed into the nose. A flap was then made in the nasal mucosa and an incision made in the inner wall of the tear sac so that these flaps would match and then by suturing, these flaps were supposed to hold each other open.

Others advised practically the same thing from the inside of the nose. Imagine making a flap in the nasal mucosa away up in the nose at the level of the tear sac, and then in that flap making a window that would fit over a hole that you were to afterwards dissect through the bone. Besides this you were then to make some more trick incisions in the tear sac itself making flaps that could be sutured to the sides of the window in the flap of nasal mucosa. All of this to be done away up in the nose at the level of the tear sac. Since I have not had even the patience to sit down and work out a crossword puzzle that I could hold in my lap I did not have nerve enough to attempt all those hieroglyphics at the level of the tear sac on the inside of the nose.

In working with some wet specimens that I keep on hand I found out several very interesting facts. I found out that the bone lying over the tear sac was not very thick nor heavy except at the lower anterior margin of the sac. This crest of bone is the posterior lachrymal crest of the lachrymal bone. This part of the bone is hard, thick and strong. In one of my patients I found this part of the bone so hard and strong that I had to use a chisel and mallet to break it. In none of the specimens or patients that I have operated so far have I found it necessary to disturb the middle turbinate.

The thought then struck me that if the bone and mucosa were removed from an area larger than necessary to uncover the sac itself, and at the same time the sac were left in its natural bed with its inner half removed, I figured that as the mucosa healed up to the edges of the sac that the

two might grow together. Whether or not this last supposition obtains or not I can not say, but I can say that judging from clinical results so far at least that the tears have at least not been running over the face like they did before.

During the time that I was working on these specimens my patient was bolstering up her courage and trying to get enough money to ride back to Clinton from her home which was only twenty miles away. I might add that twenty miles is not always enough distance to have between you and the first patient that you operate on.

In preparing for this operation I anesthetize the area all around the anterior end of the middle turbinate by the topical application of cocaine-adrenalin mud on cotton pledges. In no case so far have I found it necessary to do anything other than that. With this anesthesia the patients complain of pain only when the sac itself is entered or grasped. I dissect away the mucosa and bone with ordinary straight curved Grunwald forceps. I might add that I locate the position to start dissection by measuring with a probe on the outside and inside of the nose and start my dissection at a point that would be the center of the sac. I then enlarge this in all directions so that I uncover an area larger than the sac itself. The hard thick crest of the lachrymal bone I remove in any way that I can. In some cases it is easily removed with the above mentioned instruments. In others I have removed it with a Kajeks forcep. And in still some others I found it necessary to use a chisel and mallet. It is necessary to remove this crest of bone in order to get a good exposure of the sac.

In those cases that are operated on during the acute stage with a lot of swelling it is an easy matter to push the sac into the nose with your fingers from the outside. In the others without this swelling to aid you I have found that about the easiest way to grasp the sac is with a right angled Yankauer needle such as used in suturing the nasal mucosa. After getting a good hold of the sac with this needle I use an ordinary sharp paracentesis knife and cut off the inner half of the sac and leave the outer half of the sac attached to its natural bed so that that holds the sac open.

Since the middle turbinate is not disturbed I have not found very much blood

in any case as yet. Up to the present time I have not done anything to these patients afterward, no syringing, dressing, no packing, and so far I have had no infection. The only thing that I have these patients use afterwards has been an ephedrine spray to keep the nose more or less open so that there can be free drainage. There has been only one case in which I had any adhesions and that was in the patient that had a deflected septum towards that side. That however was not sufficient to block the drainage.

*Patient No. 1.* Mrs E. A. W., aged 69, came in with an acute attack of mucopurulent dacryo-cystitis. She gave a history of repeated attacks of the acute condition covering a period of 19 years or longer and with the customary tearing at all times. She had immediate relief from the pain and swelling and the epiphora. To date none of these symptoms have returned. She was operated on in August, 1928.

*Patient No. 2.* Rev. J. A., aged 78, came in with an acute attack of dacryocystitis which started about 4 days before entry. He had a large swollen inflamed mass at the inner canthus of his eye. He gave a history of having had repeated attacks of pain and swelling in this location over a period of many years. During this time he had had a constant flow of tears over his face. I operated him this same day under local anesthesia. He had immediate relief from the pain and swelling and all signs of inflammation were gone within 48 hours. He was operated on July 9th, 1929, and to date has had no return of the acute abscess condition and has tears only when out in the cold wind.

*Patient No. 3.* Mrs. M. H., aged 69. Came in complaining of attacks several times a day in which the eye would suddenly fill with a stringy purulent material and of tearing for a great many years. I advised operating but since she had been to "all the good men" in Oklahoma I had to argue with her for three months before she would submit to operation. I operated her in August, 1929, and since that time she has been free from pus and has tears only when she is out in the cold wind. At that time this eye waters a little more than the other eye.

*Patient No. 4.* J. M., a man in his early forties, has had more than his share of eye trouble. He lost his eye a great many years ago from the explosion of a gun. In

the right eye he has had an old trachoma with all its attendant complications such as repeated corneal ulcers, entropion with trichiasis, and an old chronic purulent dacryocystitis with epiphora. During the last attack of corneal ulcer that he has had I was able to persuade him to let me do this intranasal operation only after his eye got so bad it looked like he had surely lost it. After drainage of the tear sac the corneal ulcer healed very rapidly. Now the only complaint he has besides the impaired vision from the many corneal scars that he has, is that this eye waters more than the other one when he is out in the cold wind.

*Patient No. 5.* Miss S. N., about 40 years of age. This patient came in with an acute attack of dacryocystitis. Her right eye was swollen nearly shut. She gave the usual history of tearing for years with an occasional sudden attack of pain and swelling that would close this right eye overnight. To add complications to this case she has a highly deflected septum towards the affected. After operation all her symptoms cleared within a very few days. She was operated on January 12, 1931, and to date has not had a return of either the swelling or epiphora. She does have a new complaint however and that is that when she blows her nose the air comes up through the inner corner of the eye lid and splatters her glasses with tears. She does have more tears on this side of her face when she is out in the cold wind. I am finding this symptom in most of these cases.

*Patient No. 6.* J. R. J. This poor little fellow thinks he is about ten years of age. That is his apparent age. He was turned over to the ladies of the associated charities after he was found sleeping on back porches and eating anything that came his way. He had had a sore eye and some one opened it for him so he says. This left him with a fistulous tract from which tears and mucus would drain out in a constant stream over his face. A Wassermann was made on him with a four plus report. He was given a number of treatments for this but after the tears did not stop he was brought to me to see why. I found this fistulous tract connected with the tear sac. After operating on the tear sac under general anesthesia I made an elliptical incision around the fistulous tract and closed it with a single simple suture. This wound closed and healed so rapidly that there was not or has not been a tear on

his face since he was operated on. I removed the suture on the third day. I could find no evidences of syphilis except his Wassermann report and since the tears are no longer running over his face he is permitted to go to school and since the treatments for syphilis I think that the state orphanage will now accept him as a patient. He was operated on April 23, 1931. I might add that general anesthesia adds greatly to the difficulty of this operation.

To summarize I might say that to remove the bone and mucosa from an area around the tear sac larger than enough to expose the sac, and then remove the inner half of the sac with the outer half left in situ will give clinical results that are very satisfactory to the patient. I can recommend this operation for the following reasons:

1. It is easy to do and has no trick stitches or flaps to complicate it.
2. Can be done under either local or general anesthesia although easiest to do under local anesthesia.
3. There are no external dressings to take care of afterwards, no scars to show.
4. The results so far have been practically perfect and at their worst are better than simple drainage.

I recognize that this is too soon to say that the results will be permanent and this paper is presented to elicit comment and any help that I can get from your suggestions.

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"WHEN, AS AND IF"

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The bottle fed baby exhibits symptoms indicating partial vitamin B deficiency—described by Hoobler as (1) anorexia (2) loss of weight (3) spasticity of arms and legs (4) restlessness, fretfulness (5) pallor, low hemoglobin, etc.

Dextri-Maltose with Vitamin B may be used in adequate amounts (up to 71 Chick-Roscoe units) without causing digestive disturbance. This ethically advertised product derives its vitamin B complex from an extract of wheat germ rich in B and brewers yeast rich in G. Physicians who have attempted to make vitamin B additions to the infant's formula but who have been obliged to abandon same due to diarrheas or other unfortunate nutritional upsets, will welcome Mead's Dextri-Maltose with Vitamin B. This is a tested product with rich laboratory and clinical background and is made by Mead Johnson & Company, a house specializing in infant diet materials.

Not all infants require vitamin B supplements, but when the infant needs additional vitamin B, this product supplies it together with carbohydrates. In other cases, the carbohydrates of choice is Dextri-Maltose No. 1, 2 or 3.

## UNUSUAL FOREIGN BODY IN LUNG —(PECAN CHIP)—CASE REPORT<sup>1</sup>

ARTHUR H. DAVIS, M.D.  
TULSA

Statistics of the Jackson Bronchoscopic Clinic show that carelessness is the chief cause of foreign body accidents<sup>2</sup>.

The above being the rule in this case.

*Case No. 1889.* Mr. L., aged 73 years, reported to hospital, May 16, 1931, with his infant son aged 8 months with the following history:



11½ mm. in length—7 mm. wide—1 mm. thick

About 18 hours previously while making a "whistle" out of a pecan stick for one of his older sons his baby managed to get one of the chips in his mouth and promptly "swallowed" it. Difficulty in breathing was not so marked until several hours before coming to hospital.

*Past History:* Normal delivery, full term, breast fed infant. Influenza at three months, no other illness. On examination child seemed to be very sick, marked difficulty in breathing and perspiring freely. No cyanosis observed. Temp. 101 degrees rectal.

*Physical Examination:* Head, normal size and shape; hair-scalp-negative. Eye-ear-nose-negative. Throat-generalized redness-mucus; some dermatitis around mouth. Neck-negative. Thorax-respiratory movements labored. Mucous rales heard over left chest with diminished breath sounds. Apparently some enlargement left chest. Heart-regular-rapid. Abdomen-negative. Extremities-negative. Reflexes-normal. Skin-smooth-warm-damp. No lympho-adenopathies.

*X-ray Report No. 5288.* Radiological examination of the chest and neck shows no evidence of presence of foreign body,

but the lung appears to be in constant state of expansion. The child was removed to operating room and a 4 mm. by 30 cm. bronchoscope passed into lung. No anesthesia. The foreign body was encountered below bifurcation on left side blocking off that side completely. The foreign body was removed and mucus aspirated from left side which seemed to be practically filled up. Child's breathing became less difficult and was discharged home on the following day apparently in good condition. Temperature to 99 degrees rectal.

**Comment:** An obstructive foreign body aspirated without knowledge of parents or nurse may closely simulate a true lobar pneumonia, and be diagnosed as such, leading to fatal termination. "True lobar pneumonia as the term is understood by internists has not occurred once in 500 cases of foreign body at the Bronchoscopic Clinic".

Given a case with no history foreign body, with difficulty in breathing becoming progressively worse, with signs of a pneumonia and negative X-ray findings for foreign body, bronchoscopy should be done, as this would tend to clear up the diagnosis immediately and possibly be a life saving measure.

1. Arthur H. Davis, M.D., Springer Clinic; Marvin D. Henly, M.D., Medical Arts Bldg., Tulsa, Oklahoma. From Nose & Throat Service St. Johns Hospital, Tulsa, Oklahoma.

2. Nose, Throat and Ear and Their Diseases. Jackson-Coates. (Foreign bodies in the air and food passages. P. 1077).

3. Bronchoscopy and Esophagoscopy. Jackson 2nd Edition. Page 153.

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#### PSYCHOCHEMISTRY: SOME PHYSICO-CHEMICAL FACTORS IN MENTAL DISORDERS

Walter Freeman, Washington, D. C. (Journal A. M. A., Aug 1, 1931), states that the application of another of the fundamental sciences to the study of behavior, namely biochemistry, is being witnessed today, and the designation psychochemistry is the natural result. Advances in a science emanate from those who, already versed in two different disciplines, work in the field of knowledge lying between them. Mere collaboration of two different experts will not be so productive, since neither can be completely in sympathy with the point of view of the other. Few biochemists are versed in psychiatry, however, and few psychiatrists have more than a bowing acquaintance with such terms as colloidal dispersion, interfaces, ionic dissociation and oxidation-reduction. Psychochemists, therefore, will be grounded in biochemistry as well as in psychiatry and will investigate the problems of normal and abnormal behavior from the standpoint of altered chemical reactions in that master tissue of the body, the central nervous system. The failure of microscopy to demonstrate structural alterations

in the so-called functional psychoses is driving the investigator into new channels of research. The results of this activity are just beginning to appear and will grow tremendously in volume. What future accomplishments may be witnessed are beyond human power to foretell. Dementia praecox, manic-depressive psychosis, paranoia, epilepsy, represent four groups of disorders that rest on no constant well defined alteration in the histology of the nervous system. None can doubt, however, that there exists an underlying structural deviation, provided such a definition is pushed to its logical limits to include molecular and ionic imbalances. Probably the changes are much more gross than that and will be readily demonstrable when proper methods are applied. Such work as that already performed is sufficient to enable one to erect hypotheses concerning the probable underlying physicochemical mechanisms concerned in some of these major abnormalities. Most clearly indicated is the role of water balance in epilepsy, although this also involves such mechanisms as hydron concentration, oxidation-reduction and salt equilibrium. Moreover, the role of defective oxidation in the nervous system in schizophrenia also rests on considerable evidence, and the striking parallels, from the chemical standpoint, between the phases of manic-depressive psychosis and the hibernation cycle of certain mammals, point to same phasic alteration in colloidal dispersion and electric potential. In view of its newness the author makes a survey of the field, and the possibilities of its future development. He emphasizes that there are certain biochemical processes associated with disorders of behavior, and that if one is equipped with a knowledge of their workings one may be able, by supplying deficiencies, by preventing excesses, by controlling periodic shifts in various equilibria, to bring about artificially conditions that approach the normal. The psychochemist has a large order.

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#### RATS AS CARRIERS OF MEXICAN TYPHUS FEVER

Herman Mooser, M. Ruiz Castaneda and Hans Zinsser, Boston (Journal A. M. A., July 25, 1931), recovered virus indistinguishable from the ordinary virus of tabardillo, or Mexican typhus fever, from the brains of rats trapped in Mexico City in locations where cases of typhus fever had occurred, and during a period in which a moderate epidemic of typhus fever was prevalent. This work is a direct confirmation of the evidence obtained indirectly through fleas by Dyer of the existence of a reservoir of typhus fever in rats and confirms the original suggestion made by Maxcy, in 1926, in regard to the epidemiology of the North American disease. The belief that the virus recovered from the rats is identical with that of Mexican typhus fever is based on typical reactions in guinea-pigs, with elevated temperature and testicular swelling, the presence of characteristic Rickettsia, immunity reaction and the development of Weil-Felix agglutination reactions in inoculated rabbits. The manner of possible transmission of the disease from rats to man is being investigated by an analysis of the insects found on the rats and in the houses where typhus fever has occurred. This work is being continued in Mexico City and will be reported on at a later date. Also, the frequency with which rats infected with typhus fever can be found cannot be judged until many more animals have been collected, this communication being merely in the nature of a preliminary report.

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor  
Medical Arts Building, Tulsa, Okla.

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### EDITORIAL

#### THE UNIVERSITY HOSPITAL AND CHIROPRACTIC MUDDLE

On July 27th, 1931, the Governor issued an executive order that a chiropractor be admitted to the University Hospital for the purpose of treating a patient in the free teaching service. This was done immediately after a telephone conversation with Dr. LeRoy Long, Dean, with the Governor refusing to permit Dr. Long to present reasons opposing such an order, and which order Dr. Long protested most earnestly and vigorously. Two or three days later the President of the University,

advised Dr. Long that the Governor had turned the entire matter over to the Board of Regents to be settled according to law. It was then urged that the President of the University ask the Board of Regents to meet and take action, the President later advising that he was unable to get the Board together.

On August 1, 1931, a meeting of the Council and others interested was held in Oklahoma City and a committee composed of the President and two ex-presidents of the Association was appointed for the purpose of urging the Board of Regents to try to bring about an early meeting. Doctors Long and Horace Reed, the next day, earnestly requested the President of the University to have an early meeting of the Board of Regents, but the President advised that he was not able to get the members of the Board together, that they felt that the matter should be put off, and an effort made to "smooth things over." Though the President of the University repeatedly urged the Board of Regents to hold a meeting nothing was done. The President finally advised on August 6th that he was unable to get the Board to meet; that the Board had not indicated when a meeting would take place, but that it would not be very early; that he was leaving in two days for a vacation.

In the meantime the chiropractor was going to the hospital, students were asking for their credits, interns were greatly disturbed, and the general morale was bad.

After careful consideration, on August 7th, Dr. Long called the faculty together, briefly went over the situation, telling them he would resign the next day, and advised them to elect a chairman so they might consider the emergency in an orderly manner. This was a very trying time for Dean Long, for about a score of those in the meeting were with the school when he took charge of it about sixteen years ago. Many feeling speeches were made in which Dr. Long was urged to reconsider his decision. A motion expressing confidence and urging him to remain was passed unanimously, but Dr. Long thought that it was best under the situation, that he resign, and for the following reasons:

1. The Governor had, by a formal executive order, interferred with the fundamental functions of the school and hospital without giving the faculty an opportunity to be heard.

2. Dr. Long felt that his resignation

was the only possible way to secure prompt action by the Board of Regents.

3. It was necessary to emphasize the actual scope and purpose of legitimate medicine as opposed to the cults.

The resignation went in August 8th and it was almost immediately announced there would be a meeting of the Board of Regents on August 12th. Dr. Long and his committee, under authority given them by the Council, employed Ex-Justice of the Supreme Court, Thomas H. Owen, who, after exhaustive investigation, prepared a brief in which he stated that, under the law, the cults could not be admitted to University Hospital.

The Board of Regents met at the School of Medicine on August 12th, and by a vote of 5 to 2 the cults were excluded from University Hospital. Dr. Long's resignation was formally accepted, and Dr. L. J. Moorman, Oklahoma City, a most estimable member of the profession was elected dean.

It is only fair to say that the President of the University, Dr. Bizzell, as well as the members of the Board of Regents were anxious to do everything legally possible in the interest of the School of Medicine, but apparently, they were unable to understand the necessity of prompt action if the standing of the School was to be preserved.

The Journal feels unfitted to outline and estimate the tremendous work Dr. Long has performed in his capacity as Dean of the Medical School. He not only holds the great respect, confidence and friendship of the entire medical profession of Oklahoma but hundreds of the leading men in the medical profession outside the State regard Dr. Long, not only as a leader of medicine in Oklahoma, but as a leader of the greatest ability of the medical profession in the United States. Under the circumstances the best has been done that possibly can be, but it seems impossible that the action of the Governor, or his interpretation of the law, has not done the University incalculable harm. Dr. Long has been the prime mover in bringing the School of Medicine to a rank, second to none in the country. The University Hospital was erected solely and only upon the urging of Dr. Long and his friends, who felt such a hospital necessary in order to secure for the medical school its A-Grade rating, which it has now held for many years. Very few people understand that if

chiropractors or other cultists are permitted to enter that hospital that the school will at once be discredited, that its graduates will not be permitted to appear before any State Board for examination, in fact a more serious injury to the school could not occur. The entire performance has been one of the most unfortunate things that could occur to injure the medical school.

Dean Moorman will have the support of every member of the Medical Association of Oklahoma. The cults will be kept out of that school if it is legitimately possible to keep them out, but if they are permitted to enter its doors will soon be closed as a medical school.

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PLANS FOR THE 1932 SESSION

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The following arrangements have been made for the 1932 session of the Oklahoma State Medical Association. All meetings, including the General Session, the morning General Scientific Sections, Eye, Ear, Nose and Throat, General Surgery, General Medicine and Exhibits, will be in the Hotel Mayo, which is in position to supply more space than we have ever had at any Tulsa meeting. In addition to this the next annual session will have one day or as much thereof as is necessary, devoted to Dermatology, X-ray and allied subjects and the same amount of time to Pediatrics.

The time of the meeting will be May 9, 10, 11, 1932.

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ANNUAL FALL CLINICS

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The annual fall clinics of the Oklahoma City Clinical Society, noted elsewhere in the Journal, will be held in that city, November 2, 3, 4, 5, 1931.

Meetings of this type have rapidly become very popular with the medical profession and of great use to the hundreds of physicians who attend as well as a great economical saving by reason of the fact that much work is condensed into a short space of time and presented by brilliant leaders of medicine and surgery in such a manner that the attendants receive the greatest possible good from them.

Oklahoma City is too well known as a medical center to need comment in order to induce physicians to attend such a meeting as this conference will be. A glance at the list of distinguished guests who will

be present and present clinics is sufficient warranty to the physician who contemplates attending that his visit will be more than worth while.

—O—

### Editorial Notes—Personal and General

DR. PAT FITE, Muskogee, spent the month of August in Minnesota.

DR. F. E. SADLER, formerly of Henryetta and Durant, is now located in Coalgate.

DR. O. E. TEMPLIN, Alva, has returned from Colorado, where he spent the summer.

DR. R. L. MITCHELL, Muskogee, spent the month of August in the Canadian Rockies.

DR. L. B. WINDHAM, Okmulgee, has moved to Tyler, Texas, where he will reside after September 1st.

DR. W. C. VERNON, Okmulgee, will spend eight months taking a special course in surgery at Vienna.

DR. E. P. DAVIS, Oklahoma City, spent June and July at Michael Reese Hospital, Chicago, taking courses in diseases of the heart and circulation.

DR. AND MRS. E. D. RODDA, Okmulgee, have departed for Europe, where Dr. Rodda will spend six months or a year studying in Vienna and Budapest.

DR. E. RANKIN DENNY, Tulsa, announces the removal of his office to Suite 809 Medical Arts Building. Practice limited to internal medicine, especial attention to hay-fever, asthma and allied allergic diseases.

DR. F. A. HARRISON and family, Ardmore, have left for Boston, where Dr. Harrison has received an appointment at the Massachusetts General Hospital for nine months in the children's department. He will take work under Dr. Fritz Talbot, professor of pediatrics at Harvard.

JACKSON COUNTY MEDICAL SOCIETY met in June at Altus for their regular meeting. Dr. J. T. Lowe, Mangum, presented a paper on "Pediatrics, Hygiene and Diseases of Children." Dr. B. N. Collier, Tipton, gave an interesting discussion on fracture of large bones and presented two of his patients for illustration.

—O—

### DOCTOR ROBERT H. HENRY

Dr. R. H. Henry, pioneer physician of Ardmore, died June 29, at the Von Keller Hospital of heart disease. Funeral services were held at Harvey Brothers Funeral Home. Dr. Charles C. Weith of the First Presbyterian Church conducting the services. The Knight Templars formed an es-

cort at the cemetery, directed by the Masonic fraternity.

Dr. Henry was born in Wurzem, Germany, December 24, 1860, where he attended school and graduated from the Doenges College in 1878, coming to America in 1883. He engaged in the drug business in the state of Texas and later entered the University of Nashville, Tenn., where he graduated from the medical school in 1896. He returned to Europe after graduation where he spent a year taking a general course in Leipsic.

Dr. Henry has lived in Ardmore for more than 30 years.

He is survived by his wife, and two children.

—O—

### BOOK REVIEWS

**The Blood Picture.** And its clinical Significance (Including Tropical Diseases) a guidebook on the microscopy of blood. By Professor Dr. Victor Schillimg, Physician in Chief of the First Medical University Clinic, Charite, Berlin. Translated and edited by R. B. H. Gradwohl, M.D., Director of the Pasteur Institute of St. Louis, and the Gradwohl School of Laboratory Technique, St. Louis, Mo.; Lieutenant Commander Medical Corps (Fleet) United States Naval Reserve. 7th and 8th revised edition with 44 illustrations and 4 color plates. St. Louis, Mo. The C. V. Mosby Co., 1929. Price \$11.00.

A fascinating book which should be in the library of the modern physician. The title "Blood Picture" is a very apt one. The illustrations are excellent. Using the colored plates in the back of the book, the reader can follow the detail picture which the author elaborates in part 3 "Fundamental Principles for Clinical use of the blood picture." In part 1 Technic, no mention is made of Wright's stain which is probably the most commonly used stain in American laboratories.

Part 4 selected clinical examples are given which adds additional value to the book. The translator, Dr. Gradwohl, has rendered the English reading a great service. The method of presentation is very logical. One is always interested to read the succeeding pages and see what it has to surprise the reader.—F. J. Wilkiemyer.

**The Surgical Clinics of North America.** (Issued serially, one number every other month.) Volume 11, No. 3. (New York Number—June, 1931.) 239 pages with 73 illustrations. Per clinic year (February, 1931 to December, 1931.) Paper, \$12.00; Cloth, \$16.00. Philadelphia and London: W. A. Saunders Company, 1931.

This is a splendid issue. The following are unusual and remarkable works: "Rupture of the Kidney" by Dr. Winfield Scott Pugh; "Splenectomy For Thrombocytopenic Purpura" by Dr. Edward J. Donovan; "Some Common Rectal Disorders—Newer Considerations in Treatment" by Dr. Frank M. Frankfeldt; "The Coexistence of Perforated and Bleeding Duodenal Ulcers" by Dr.

Benjamin N. Berg; "Meeting of the New York Committee of American Surgeons" conducted by Drs. William Darrach and Clay Ray Murray; "Marginal or Jejunal Ulcers" by Dr. J. William Hinton.

**The Collected Papers of the Mayo Clinic and The Mayo Foundation For 1930.** Volume XXII. Edited by Mrs. Maud H. Mellish-Wilson, Richard M. Hewitt, B.A., M.A., M.D., and Mildred A. Felker, B.S. Octavo Volume of 1125 pages with 234 illustrations Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$13.00 net.

This issue numbers 482 papers, 85 reprints in full, 30 are abridged, 55 are abstracted and 312 are only given by title. The papers of the Mayo Clinic are looked forward to each year as great contributions to each physician of medicine and surgery. This volume like its predecessors will be of great use to every type of practitioner of medicine and surgery.

**Nutrition and Diet in Health and Disease:** By James S. McLester, M.D., Professor of Medicine at the University of Alabama, Birmingham, Ala-

bama. Second Edition, Revised and Reset. Octavo of 891 pages. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$8.50 net.

Doctor McLester notes that few departments of medicine have made such strides as the science of nutrition. This new edition includes recent discoveries concerning vitamins, minerals, and deficiency diseases, have occasioned many additions, and changes have been necessary in the discussions of diabetes, obesity, gout, and the disorders of digestion. Among the added sections are those dealing with the toxemias of pregnancy, food poisoning, irritable colon, and protozoan infections. Many sections were rewritten dealing with enzymes, protein requirement, epilepsy, and diseases of the blood.

To the general practitioner and internist as well as the surgeon nutrition and diet must constantly be borne in mind. We believe this book will aid those seeking formulae.

**Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus:** By Louis A. Buie, B.A., M.D., F.A.C.S., Section on Proctology, The Mayo Clinic, Rochester, Minnesota, and As-

## REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, June 11th and 12th, 1931.

The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Burt, James Houston (Col.)	1901	Atlanta, Ga.	McMurry Med.	1930	Oklmulgee, Okla.
Farrar, William Preston	1905	Big Sandy, Tex.	Baylor Med.	1929	Durant, Okla.
Goodwin, Joseph Lee	1876	Tenn.	Southern Med.	1898	Shawnee, Okla.
Hall, Gilbert Hoke	1872	Illinois	N. Y. Univ. & Bel.	1901	Tulsa, Okla.
Holloway, Thos. Renley	1873	Alabama	Grant Univ.	1903	Stonewall, Okla.
Proctor, Carter Atwater	1888	Doniphan, Mo.	Washington	1912	Tulsa, Okla.
Stevenson, Charles Calvert	1905	Baltimore, Md.	Univ. Md.	1929	Fairfax, Okla.
Oliver, Hardy P.	1861	Alabama	Little Rock Med.	1908	Ivanhoe, Tex.
Phelps, Malcom Elza	1905	El Reno, Okla.	Univ. Iowa	1929	El Reno, Okla.
Rodriguez, Mamiliano J.	1905	Reyusa, Mexico	Univ. of Okla.	1931	Hidalgo, Tex.
Reed, Emil Patrick	1905	Guthrie, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Devaney, Phil J.	1907	Denison, Tex.	Univ. of Okla.	1931	Sayre, Okla.
Emenhiser, Lee Kenneth	1906	Davidson, Okla.	Univ. of Okla.	1931	Frederick, Okla.
Hughes, Horton Ernest	1907	Shawnee, Okla.	Northwestern	1930	Shawnee, Okla.
Hyroop, Muriel Evadne (F)	1895	Toronto, Canada.	Univ. of Toronto	1928	Oklahoma City, Okla.
Heiligman, Haskell	1908	Hugo, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Cassidy, John McCarty	1905	Chandler, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Bargar, John Blanchard	1905	Wayne, Okla.	Univ. of Okla.	1931	Purcell, Okla.
Sehested, Herman Chas.	1901	Nebraska	Univ. of Okla.	1931	Oklahoma City, Okla.
Driver, George Lyman	1898	Helena, Mo.	Harvard Med.	1929	Ponca City, Okla.
Ward, Delbert Audray	1904	Marshall, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Nicholson, James L.	1904	Missouri	Univ. of Okla.	1931	Oklahoma City, Okla.
Lemon, Cecil Willard	1903	Wyandotte, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Powell, Tracy O.	1903	Patmos, Ark.	Univ. of Okla.	1931	Oklahoma City, Okla.
Sanger, Paul G.	—	Yukon, Okla.	Univ. of Okla.	1931	Choctaw, Okla.
Reeves, Claude L.	1893	Durant, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Sheppard, Mary Sawyer (F)	1894	Hardy, Tex.	Rush Med.	1931	Oklahoma City, Okla.
Hoot, Paul Monroe	1905	Genda Spgs, Kan.	Univ. of Okla.	1931	Ponca City, Okla.
Ford, Joseph Wesley	1905	Hokes Bluff, Ala.	Univ. of Okla.	1931	Hokes Bluff, Ala.
Johnson, Raymond LeRoy	1904	Muldrow, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Harris, Frank Marshall	—	Antlers, Okla.	Univ. of Okla.	1931	Antlers, Okla.
Springer, Homer C.	1907	Tuscaloosa, Ala.	Univ. of Okla.	1931	Clayton, Ala.
Kimball, Melvin Clinton, Jr.	1908	St. Louis, Mo.	Univ. of Okla.	1931	Tulsa, Okla.
Keller, Wilbur Floyd	1908	Ellsworth, Kan.	Univ. of Okla.	1931	Oklahoma City, Okla.
Tool, Charles Donovan	1895	Edmond, Okla.	Univ. of Okla.	1931	Edmond, Okla.
Little, Aaron Chalfant	1902	Hereford, Tex.	Univ. of Okla.	1931	Oklahoma City, Okla.
Wooddon, Fred Edward	1907	Staunton, Va.	Univ. of Okla.	1931	Oklahoma City, Okla.
Kuhn, John Frederick, Jr.	1896	Oklahoma City, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Shuller, Elbert Henderson	1907	Ozark, Ark.	Univ. of Ark.	1929	Ozark, Ark.
VanValkenburgh, G. M.	1902	Deer Creek, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Barrow, Llewellyn L.	1903	McGregor, Tex.	Univ. of Okla.	1931	Oklahoma City, Okla.
McGhee, Charles L.	1900	Chickasha, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Burleson, Hopson Ned	1903	Wortham, Tex.	Univ. of Okla.	1931	Oklahoma City, Okla.
Birge, Jack Paul	1906	Kiowa, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Herrmann, Jesse Duval	1907	Dennison, Tex.	Univ. of Okla.	1931	Britton, Okla.
Clanin, James Olin	1902	Asherville, Kan.	Univ. of Okla.	1931	Crescent, Okla.
Hazel, Onis George	1900	Norman, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Finch, James William	1908	Carmi, Ill.	Univ. of Okla.	1931	Oklahoma City, Okla.
Brightwell, Gaines L.	1906	Washington, Ark.	Univ. of Okla.	1931	Oklahoma City, Okla.
Curry, Roy Lee	1905	Hollis, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.
Mitchell, Clarence	1897	Walnut Tree, Ark.	Univ. of Okla.	1931	Norman, Okla.
Cook, Odis A.	1905	Oklahoma	Univ. of Okla.	1931	Binger, Okla.
Ryan, Warren Albert	1900	Hickory, Okla.	Univ. of Okla.	1931	Norman, Okla.
Boatright, Lloyd Cecil	1900	Conwy' Spgs, Kan.	Univ. of Okla.	1931	Oklahoma City, Okla.
Hood, James O'Leary	1907	Breckenridge, Tx.	Univ. of Okla.	1931	Norman, Okla.
Anderson, William Douglas	1904	Claremore, Okla.	Univ. of Okla.	1931	Oklahoma City, Okla.

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# THE JOURNAL

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VOLUME XXIV

MUSKOGEE, OKLAHOMA, OCTOBER, 1931.

NUMBER 10

Published Monthly at Muskogee, Oklahoma, under direction of the Council.

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POST-GRADUATE COURSES — LECTURES — HOSPITAL CLINICS  
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BANQUETS — DINNERS — COMMERCIAL  
AND SCIENTIFIC EXHIBITS  
TALKING PICTURES  
ENTERTAINMENT

Eighteen Distinguished Guests

Plan now to come See page VII, for program



# Announcements

1. Simple, quick laboratory test for early diagnosis of pregnancy as reported by Drs. Friedman and Lapham of the University of Pennsylvania in the March issue of American Journal of Obstetrics and Gynecology.

1. Positive within one week following cessation of Menses.
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7. Fee is \$10.00. Reports wired.



2. Reduction in price of Antirabic Vaccine.

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# THE JOURNAL

OF THE  
OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV

MUSKOGEE, OKLAHOMA, OCTOBER, 1931.

NUMBER 10

## SILICOSIS<sup>1</sup>

F. V. MERIWETHER, M.D.  
R. R. SAYERS, M.D.  
PICHÉR

Silicosis is a chronic disease of the lungs caused by the inhalation of minute particles of silicious dust. It is characterized anatomically by fibrotic changes in the lungs and clinically by progressive dyspnoea, decreased chest expansion, and decreased capacity for work out of proportion to physical evidence of disease.

### HISTORY OF THE DISEASE

The early history of silicosis is somewhat obscured due largely to the lack of knowledge of the various respiratory diseases on the part of early writers. Probably the most complete history of the disease is that given in the Milroy Lectures of Dr. Edgar L. Collis<sup>4</sup>. Dr. Collis quotes Herbert Spencer in his account of human progress as saying that the starting point was "localization of human industries." He also quotes Sir Charles Lyell<sup>5</sup> and Dr. Isaac Taylor<sup>6</sup> as having described such

1. Published by permission of the Director, U. S. Bureau of Mines. (Not subject to copyright). Presented at the meeting of the Oklahoma State Medical Association at Oklahoma City, Okla., on May 11-12, 1931.

2. Surgeon, U. S. Bureau of Mines; passed assistant surgeon, U. S. Public Health Service.

3. Chief Surgeon, U. S. Bureau of Mines; surgeon, U. S. Public Health Service.

4. Collis, Edgar L., Milroy Lectures, 1915, p. 3.

5. Lyell, Charles, *Antiquity of Man*.

6. Taylor, Isaac, *Origin of the Aryans*, p. 181. localization in prehistoric factories for the manufacture of flint implements. In another place Dr. Collis quotes Chateauneuf as saying: "By a fate which seems connected with all that concerns the art of war, this industry slays those who follow it; it kills them before their time; for them there is no old age. When asked the cause of so premature a mortality, doctors and officials give the same reply—pulmonary phthisis induced by prolonged inhalation of dust generated from working flints." This author states the "probability suggests therefore that the starting point of human progress was associated with at least one form of industrial pneumoconiosis." Dr. Collis quotes Hippo-

crates in his epidemics as speaking of the metal digger "as a man who 'has his right hypochondrium bent, a large spleen, and a costive belly; he breathes with difficulty, is of pale wan complexion and is liable to swelling in his left knee.'" He also quotes George Bauer, who wrote under the name of Georgius Agricola, in his work *De Re Metalllica*, stating that "other mines are

<sup>7</sup>Annals d'Hygiene Public, Vol. 16, p. 10, Paris, 1831.

very dry, and the constant dust enters the blood and lungs, producing that difficulty of breathing the Greeks call asthma. When the dust is corrosive it ulcerates the lungs and produces consumption."

Other writers of this period described the effects of dust upon the lungs and displayed a knowledge of the disease little short of present knowledge. In 1862, a Royal Commission was appointed in England to inquire into the health of miners. The clinical observations of the Commission revealed clearly the nature of the trouble from which the miners suffered, but attributed the findings to bad living conditions, lack of ventilation and explosive fumes. These conditions are recognized today as being of some importance in the incidence of pneumoconiosis, particularly ventilation, and strange to say, among the silicotic cases of the lead and zinc miners there is a prevalent idea that their physical condition is due to the same causes found by this Commission. In 1902, a Departmental Committee was appointed, of which Dr. J. S. Haldane was a member, to investigate the high death rate from phthisis among the Cornish tin miners. This committee concluded that the high death rate was due to the dust. During this period the importance of dust was recognized by the medical profession and many articles appeared on the subject, but for a time thereafter very little thought was given to it. Within the last few years more serious thought has again been given to this disease and it has been found that it is widely scattered throughout the world. The disease has been studied in Australia, New Zealand, Great Britain, South Africa, and the United States. More work has been done in South

Africa than in any other country in the study of silicosis, as a far greater number of men (from 12,000 to 15,000 whites and about 180,000 blacks) in a limited region are exposed to rock dust containing a high percentage of silica. For the years 1908-1909 the Miners' Phthisis Commission of South Africa<sup>8</sup> considered that out of a mining population of 12,000, approximately 1,000 men in any one year would reach the stage of definite incapacitation.

8. Irvine, L. G., and Watt, A. H. Miners' Phthisis. Reprint from Transvaal Med., Jour., September, 1912, 12 pp.

On account of the heavy morbidity from miners' phthisis a miners' Phthisis Medical Bureau was established in Johannesburg in 1916, under Government auspices<sup>9</sup> for the purpose of periodical examination of miners.

In the United States investigations have brought out the fact that silicosis is present in many of the mining districts. In Missouri, in the Joplin district, Dr. Lanza<sup>10 10a</sup> found that 433 miners out of 720 examined had silicosis. He also found that 432 out of 1,018 examined in Butte, Mont., were so affected. The disease has been found in Nevada, Idaho, Arizona, California and Alabama. Jarvis, Hoffman and others, and more recently Russell and Thompson, have shown the mortality from this disease to be very high among granite workers in Vermont.

9. Steuart, W. Radiography in Its Relation to Miners' Phthisis on the Witwatersrand. Reprint from Archives of Radiology and Electrotherapy, February, 1923, 12 pp.

10. Higgins, E., Lanza, A. J., Laney, J. B., and Rice, G. S., Siliceous Dust in Relation to Pulmonary Disease Among Miners in the Joplin District, Missouri. Bull. 132, Bureau of Mines, 1917, 116 pp.

10a. Harrington, D., and Lanza, A. J. Miners' Consumption in the Mines of Butte, Montana, Technical Paper 260, Bureau of Mines, 1921, 19 pp.

#### ETIOLOGY

The causes of silicosis can be divided into predisposing and exciting causes. Among the predisposing causes may be mentioned race, age, occupation, physical condition, and disease.

*Age.* Age is a very predisposing cause of silicosis. Apparently during the early years of working life the incidence of silicosis is comparatively low, but with increase in age there is a definite increase in the incidence of silicosis until the age of 40 is reached, when there is a sharp fall in the length of time employed in dust before first-stage silicosis is developed. Dr. L. G. Irving, in his report of 1928, shows the silicosis incidence to be as follows: 30 to 33 years of age, 0.83 per cent; 34 to 37,

2.61 per cent; 38 to 41, 3.34 per cent; 42 to 45, 3.77 per cent; and over 46, 3.51 per cent. The Bureau of Mines found that of 8,000 individuals examined, in the age group ranging from 20 to 29 years inclusive, 10.31 per cent had silicosis; from 30 to 39 years, 32 per cent had silicosis; from 40 to 49 years, 47 per cent had silicosis. The figures given seem to indicate that the critical age in the incidence of silicosis is around 40 years. This was thought to be due to the length of service underground, but the tabulation of the men entering mines under 20 years of age shows that 20.30 per cent ultimately developed silicosis; of those from 20 to 29 years of age, 20.80 per cent developed silicosis; of those 30 to 39 years of age, 24.10 per cent developed silicosis; and of those from 40 to 49 years, 24.70 per cent developed silicosis. The number of years worked by all men with first-degree silicosis averaged 12.99, but those starting in the mines after 40 years of age only worked an average of 7.33 years.

The occupation of the men is a very important predisposing factor. All men engaged in occupations that expose them to large amounts of dust, such as miners, certain steel workers, grinders, concrete dressers, glass blowers, and stone dressers are likely to contract silicosis. It is essential that the medical profession should be sufficiently familiar with industries known to expose men to dust to enable them to know what particular occupations expose the men to undue amounts of dust. In mining, generally speaking, such occupations are largely limited to face men, most of whom are drillers, shoveling and their helpers, roof trimmers, etc. Silicosis should always be looked for among men engaged in such occupations.

The exciting cause of silicosis is the inhalation of finely divided particles of silica ( $\text{SiO}_2$ ) over a relatively long period of time. Other dusts will produce a fibrosis of the lungs, but the fibrosis produced by these dusts usually can be distinguished from that produced by dust high in free silica by the roentgenograms and in some instances by clinical manifestations. The harmfulness of the dust varies with the kind of dust, the continuity or irregularity of exposure, the characteristics of the dust particles, the quantity breathed and the physical condition of the men exposed. It is now generally accepted that dust containing free silica is the most dangerous. Dust containing a rela-

tively small percentage of free silica, is known to have caused silicosis, but only after a long period of exposure. There are several theories advanced to account for the harmfulness of silica dust. The old theory, and one accepted by many, is that the fibrosis is produced by the action of the sharp cutting edges and needle-like points, together with the insolubility of the dust particles. Dr. Leroy U. Gardner<sup>11</sup> called attention to the fact that all dust particles with such physical characteristics, carborundum for example, would not readily produce a fibrosis. Dr. Haldane notes that silica dust without sharp-pointed particles, as precipitate silica, heated enough to dehydrate, if inhaled, will cause silicosis similar to that produced by quartz dust. These facts caused many investigators to believe that the mechanical action of silica particles is of very little importance. Many investigators think that the fibrosis is produced by the chemical action of silica. W. M. Myers<sup>12</sup> found that silicious dust from the Picher field was soluble in

11. Gardner, Leroy U., Studies on Experimental Pneumonokoniosis, reprinted from The American Review of Tuberculosis, Vol. XX, No. 6, 1929.

12. Myers, W. M., Solubility of Finely Divided Rock Dusts in Water, Kerosene and Alcohol. Reports of Investigations, Serial 2548, Bureau of Mines, 1923.

water. Dr. A. Mavrogordato<sup>13</sup> reports that silica is soluble in weak alkaline solution similiar to body fluids. He concluded that the solubility and chemical activity of silica are of great importance and that hardness and sharpness are of but little importance in causing silicosis. Other investigators concur in these findings and apparently laboratory workers on silicosis are inclined to believe that the lung changes are produced by the chemical or toxic actions of silica.

Another physical characteristic of etiological importance is the size of the dust particles. It is generally accepted by most writers that only those particles less than 10 microns in diameter are retained in the lung tissue. The larger particles are caught and removed by the ciliated epithelium of the air passages of the lungs. Of those that reach the lungs the smaller particles are more numerous and more likely to cause fibrotic changes. Dr. A. Watkins-Pitchford and Dr. Moir write

13. Mavrogordato, A., Studies in Experimental Silicosis and Other Pneumonokonioses, Publication of the South African Institution for Medical Research, Johannesburg, March 31, 1922, 164 pp.

that the dust particles in the lungs of miners on the Rand were mostly less than 5 microns long; only one particle in 2000

was over 8 microns and only one in 1,000,000 was as much as 14 microns long.

The quantity of dust to which men are exposed is one of the most important etiological factors. This is recognized by investigators and an attempt was made to set an arbitrary limit upon the amount of dust in the air that would offer a reasonably safe condition. D. Harrington<sup>15</sup> states that the South African Standard is 5 mg. or 300,000,000 particles per cubic meter of air. Dr. W. T. Nelson of Australia<sup>16</sup> states that "The Inspector of Mines considers it inadvisable for men to work in air in which dust counts exceeding 300 particles per cubic centimeter have been obtained."

Lanza and Higgins<sup>17</sup> state that "It has been demonstrated in the sheet ground mines of the Joplin district that by the proper use of water and the regulation of certain details of mining, the quantity of

15. Engineering-Hygienic Aspects of Dust Elimination in Mines, p. 201.

16. Report of an Investigation of Pulmonary Condition of Mine Employees, Western Australia, years 1925-26, pp. 50-53, Table 2, S. P. No. 5.

17. Higgins, Edwin, Lanza, A. J., Laney, F. B., and Rice, Geo. S., Work Cited page 5.

dust in the mine air can be kept below 1 milligram per 100 liters of air; so it seems reasonable to use 1 milligram as a standard at least for the Joplin district." Since these data were obtained the State of Oklahoma has passed a metal-mining code, which has also been adopted by the State of Kansas, and which applies to the metal mines in the Tri-State district. Section 7 of the code sets the standard as 300 particles per cubic centimeter. The figures given indicate that the consensus of opinion of various investigators is that the quantity of dust in the air should not exceed 5 mg. or 300,000,000 particles per cubic meter. But to maintain this standard in many mines is very difficult, so much so that many mines do not undertake to do so. D. Harrington states<sup>15</sup> that "There is probably not one dry mine in the United States, coal or metal, where the average is as low as 5 mg. per cubic meter of air. In general the average air dustiness of working places of our dry metal mines runs about 20 mg. per cubic meter of air and many run above 50."

15. Work Cited, p. 11.

These figures indicate that the workmen in the dry metal mines of the United States are exposed to larger quantities of dust than those in South Africa or Australia, and it would be logical to assume that the American miners would contract

silicosis in a shorter period of time. In the gold mines of South Africa where conditions are good the average time of exposure of men before simple silicosis can be diagnosed is 7½ years; the shortest period of exposure is reported to be 2½ years.

Each of the factors given, *namely*, kind and quantity of dust, physical characteristics, physical condition of men, and length of exposure, has an important bear on the etiology of silicosis, but as the data show, their relative importance varies with different localities, fields, and working conditions to such an extent that it is impossible to assign to each an arbitrary figure that is comparable to the whole. It is probably better to consider them as a whole and say that under average conditions first-stage silicosis will occur in from 7 to 10 years, and with unfavorable conditions this period will be reduced to as low as 2 or 3 years, and possibly less. With ideal conditions it is possible for men to work in metal mines for many years without sufficient changes in the lungs to justify a diagnosis of silicosis.

#### SYMPTOMS

The development of silicosis may extend over a period of years and be so gradual that the early symptoms of the disease are often not recognized by those so afflicted or are considered to be such a slight departure from the normal that they are not important. This makes the diagnosis of silicosis in the early stage from symptoms only exceedingly difficult. As the disease progresses the clinical symptoms become more definite and those afflicted recognize that there exists some condition which interferes with normal working efficiency. With further progress of the disease the working efficiency becomes so markedly affected that there is in many cases total disability. In this state there is a definite tendency to develop complications, particularly tuberculosis or infective silicosis. The slow progress in the development of the disease has caused observers in this country and abroad to divide the disease arbitrarily into various stages. In the United States silicosis is divided into three stages; *namely*, first, second, and third. In South Africa the law defines the stages as anteprimary, primary, and secondary. An Australian report<sup>16</sup> divides pulmonary findings into fibrosis increased, early silicosis, advanced silicosis, silicosis plus tuberculosis, and tuberculosis

only. The symptoms are somewhat different in the three stages.

*Subjective Symptoms.* The subjective symptoms in early silicosis are more vague and infrequent than would be expected from the definite lung pathology revealed by X-ray examination. Only about one-third of the men admit any symptoms. Symptoms are more often noted in the nervous or neurotic type of individual than in the sturdy individual. The most common symptoms are cough, slight shortness of breath, expectoration, pain in chest and frequent colds. Of the symptoms given, the one most frequently noticed by the men is the tendency to colds. Many miners state that they have colds during the entire winter. The colds have a tendency to persist in spite of energetic treatment for a long period of time and in the late stages of the disease the cases are practically never entirely free of chest colds.

#### 16. Work Cited, p. 11.

The cough in the early stage is not troublesome, but in most instances is noticeable in the morning. As the disease progresses the cough becomes a characteristic dry, hard, irritating one, occurring most frequently in the early morning or at night. The cough is rarely productive in the early stages of silicosis but it usually is productive in the later stages and when complicated with some infective disease.

The shortness of breath in the early stage is very slight and is only noticeable on extreme exertion, but with progress of the disease there is a progressive increase in this symptom and in the late stages it becomes distressing on the least exertion. Manual labor in the late stages is impossible in most instances due to the marked dyspnoea. In some cases the dyspnoea is so marked that the patients are forced to stay in bed in a semi-reclining position. Respiration becomes difficult and is accompanied with marked effort. In this condition the fight for breath overshadows all other symptoms.

Pain in the chest is not a frequent symptom in the early stage but becomes a common symptom in the late stages. The pain is vague and flitting, usually located in the bases of the lung, but quite frequently noticed in the anterior section or in the axilla. The pain is usually attributed by the miner to rheumatism, and unless the patient is specifically asked with refer-

ence to rheumatism this symptom is often overlooked.

An important symptom in the late stages of the disease is the gastro-intestinal disturbances. This symptom is rarely noticed in the early stages. Many miners attribute their marked dyspnoea and physical incapacity to gastro-intestinal diseases and frequently consult physicians for this symptom.

Flatulence, constipation, and indigestion are common complaints. The men believe that the cough is due to indigestion and often refer to it as a stomach cough. The cough is sometimes relieved by vomiting. Dr. Lanza in his work in the Joplin field found that morning sickness was a common symptom. In the Picher district this symptom was not noticed to the extent noted by him in the Joplin field, but it has occurred sufficiently often to be considered a symptom of some importance.

Night sweats and hemoptysis occur in the late stages of silicosis but are not considered as symptoms of this disease, but indicative of some infection.

*Objective Symptoms.* The objective symptoms are not as definite as would be expected from the X-ray findings. This is particularly true in the early stages of silicosis and for this reason in all instances where silicosis is suspected a thorough physical examination and an X-ray picture of the chest should be made.

*Inspection.* The men appear healthy, with ruddy complexion, and more robust than the average healthy individual. There is a definite tendency for men with silicosis to gain in weight. This is particularly true in the first and second stage of silicosis, and even in the third, if not complicated with some infection. In some instances in the late stages the increase in weight is very noticeable and the patient becomes what may be termed "fat." These cases suffer intensely from dyspnoea. The tendency to gain in weight may be due in part to the fact that silicosis is a disease which occurs most frequently around 40 years of age when there is a tendency toward a gain in subcutaneous fat. This is probably aided by a slowing-down in the amount of manual labor performed by the men on account of dyspnoea resulting from exertion. The men appear to stand more erect and to be more muscular than normal individuals, especially in the second and third stages unless the

disease is complicated by some infection. The chest appears to be unusually thick. This is not so noticeable in the first stage but becomes very noticeable in the second stage and in the third stage the chest appears to be in nearly full inspiration. This increase in the anterior-posterior diameter of the chest gives these cases an appearance of unusual physical development. The respiratory movements of the chest are but slightly changed in the first stage, but even in these cases the movements of the chest are not fully elastic but are of a retarded, dead character. In the second stage the chest appears to move as one piece, especially the upper half, and in the third stage the movement becomes difficult; the breathing is largely diaphragmatic, with marked action of the accessory muscles of respiration.

*Mensuration.* The cardinal physical finding in silicosis is the decrease in chest expansion. This decrease of lung expansion is of relative importance and cannot be accepted as a literal finding, for it is well known that many men in excellent health have a small lung expansion. This is particularly true of the average American negro. The General Report of the Miners' Phthisis Prevention Committee, March 15, 1919, calls attention to this fact by stating: "It is not every one, even with normal respiratory capacity, who knows how to expand his chest properly and individuals vary very much in their initial respiratory capacity. A man whose initial expansion was 4 inches may have impaired expansion at  $2\frac{1}{2}$  inches." Another, even at his best, may never have had as much as  $2\frac{1}{2}$  inches. It is therefore necessary in order to evaluate the findings from measurements of the chest to have some information on the normal chest expansion of the man being examined. This is particularly true in the first stage of silicosis where there is only a small decrease in lung expansion.

A study of several thousand physical examinations, of which 2,018 had silicosis or silico-tuberculosis, shows that the average lung expansion for the negative subjects was 3.20 inches; silicotic subjects first stage, 3.01 inches; second stage 2.91 inches; third stage, 2.88 inches; those having silicosis complicated with tuberculosis 2.42 inches. These figures reveal that there is only a very small decrease in lung expansion in silicosis and emphasize the importance of repeated examinations in order for this physical sign to be of diagnostic value.

*Palpation.* There is nothing revealed by palpation of the chest in silicosis that is not revealed on inspection and mensuration. There is little, if any, change in tactile fremitus.

*Percussion.* The percussion note is usually resonant throughout the chest, but even in the early stages a slight change in the character of the tone is sometimes noted. This becomes very definite in the late stages and is sometimes described as a "dead" sound.

Patches of dullness may occur in the first stage. Such areas appear most frequently as the disease progresses. Dullness is usually located in the lower part of the chest, most often in the right axilla and is considered to indicate thickened pleura. Some care must be emphasized in detecting this sign, as the areas are often small.

*Auscultation.* Auscultation reveals a definite difference in breath sounds in a large number of cases, even in early silicosis. This sound is described by different terms and is usually referred to in our own work as a "rough" sound. The respiratory wave is short, jerky, interrupted or metamorphosing inspiration with a prolonged expiration. The inspiratory sound is usually shorter and clearer than normal. The expiratory sound is more prolonged. The changes in breath sounds are most easily detected over the anterior or lateral lower sections of the chest, but in some instances are heard over the entire chest. This type of respiration occurred in 57 per cent of our cases in early silicosis, the incidence increasing with the disease until the third stage, when in all uncomplicated cases this sign was noted. This type of respiration is not so noticeable after the disease becomes complicated with some infection.

With marked pathology indicated by X-ray findings, rales in large numbers would be expected, but apparently they are only occasionally present in uncomplicated silicosis. When present they usually indicate some infection complicating silicosis. All varieties are often heard in the third stage of the disease due to complications with infectious diseases.

The objective symptoms of silicosis as a whole are not definite enough to justify a diagnosis in the early stages without the aid of X-ray pictures. In the later stages they are sufficient to enable the clinician

to make a diagnosis with a fair degree of accuracy.

*X-ray Findings.* The value of the X-ray method of diagnosis is largely dependent upon the skill of the technician making the pictures and the experience of the reader in interpreting them. X-ray pictures should be made slightly harder than chest pictures for tuberculosis. This is necessary in order to block out the general "haziness" or "fuzziness" occurring in such a large number of cases, which is probably the result of general inflammatory conditions from bronchitis accompanying the silicosis. This method enables the reader to classify the lung changes with more definiteness and lessens the number of differences between clinical and X-ray findings. While the X-ray pictures give a very definite idea of the extent of the pathological changes occurring in the lung, the reader should have clinical experience also. Only with wide clinical experience can one determine the effect on health or working efficiency.

In first degree silicosis the X-ray pictures show that the hilum shadows are more dense and larger than normal. In many instances large calcified spots are noted in and around the hilum shadows. These are larger than those usually observed as a result of tuberculosis in childhood. The hilum shadows do not increase in size with progress of the disease, but there appears to be a definite tendency to a decrease in their size in the late stages. Following enlargement of the hilum shadows the entire bronchial tree increases in density. The bronchial tree is very noticeable and can be traced to the outer margins of the lungs. Along the thickened bronchial tree, appearing first near the hilums, are small shot-like spots, sometimes described as "beads" or bronchial "buds." These spots or "buds" are fairly dense, about  $\frac{1}{8}$  inch or less in diameter, discrete, and irregular in outline. When the spots become noticeable throughout the lower section of the lungs, in this country it is regarded as the beginning of first stage silicosis. With advance in the disease the spots increase in number, density, and size, they are clearer in outline and the condition can best be described as a general mottling. The mottling is bilateral and the density is about equal on both sides, indicating that the changes started in both sides at about the same time. This is what is usually considered the second stage of the disease. With ad-

vance in the disease these spots tend to coalesce, forming large areas of marked density. These areas usually occur in the mid-section of the lung or near the bases and present the appearance of a tubercular consolidation. The areas are usually bilateral and blend so perfectly with the snowstorm appearance of the lungs that it leads to a suggestion of silicotic areas which the physical examination and laboratory findings tend to confirm.

This is termed the third stage of the disease. The diaphragm is usually normal in the early stages of the disease but with advance in the disease there is an increasing number of cases with humping or tenting of the diaphragm, so that in the last stage the incidence of tented or humped diaphragm is fairly high. In this stage there is often a misplacement of the heart due to the chest pathology.

With efficient technique in the operation of the X-ray machine and with a fair amount of clinical experience the physician can make a definite diagnosis of silicosis by the X-ray alone and can distinguish it from other chest pathology with reasonable certainty.

*Infective Silicosis.* As previously stated, silicosis seldom reaches the terminal stage without some complication. There is apparently a definite inability in these cases to throw off any respiratory infection that they contract. Consequently in the terminal stage (third stage) many of these cases expectorate daily enormous quantities of a purulent exudate similar to that noted in bronchiectasis. The examination of this exudate shows almost all the organisms commonly found to cause pathology in the chest, such as pneumococcus, staphylococcus, streptococcus, T. B. bacilli, and spirilla. Cases in this condition are practically all bed-ridden and by most observers are considered to be complicated with tuberculosis. In the cases complicated with silicosis, if the tuberculosis exists prior to the contracting of silicosis or develops in the early stages of silicosis, the course of the disease and the symptoms resemble closely those of tuberculosis. In the cases where tuberculosis is a complication occurring after silicosis is well developed the symptoms and physical signs resemble more closely those of uncomplicated silicosis.

*Prognosis.* The prognosis in silicosis is favorable if the disease is detected in the

early stages. Practically all first-stage silicotics can improve to recovery if removed from a dusty atmosphere; the majority of second-stage cases can improve materially, if not completely recover, when removed from dusty work. In the third-stage the prognosis is not so favorable. The majority of these cases become complicated with some infection and terminate fatally. The prognosis in infective silicosis is not as favorable as in uncomplicated silicosis, but it is by no means always fatal.

*Treatment.* The Treatment can be divided into preventative and curative. The preventative treatment lies entirely in protecting these men from exposure to unduly large amounts of dust. The yearly physical examination of men is necessary in order that as soon as the first evidence of silicosis is found they can be warned to change their occupation to a nondusty one.

The curative treatment is to remove these cases from a dusty occupation. In the early stages this is all that is necessary. In the later stages treatment of symptoms as they arise gives some relief. However, we should like to call attention to the fact that in our experience the placing of these men in hospitals at absolute rest, as is done with marked benefit in tuberculosis, often proves very detrimental. It seems better to allow them some daily exercise.

#### SUMMARY

1. Silicosis or miners' phthisis has been known to occur among miners in certain districts for centuries.

2. Silicosis is due to breathing very fine rock dust. Rock dust high in free silica is found to be most injurious. The chief predisposing causes are the physical condition, occupation and age of the men.

3. It is customary to divide the disease into three stages; in America they are commonly referred to as first, second, and third.

4. The cardinal symptom of silicosis is shortness of breath, especially on exertion. The cardinal sign is diminished expansion of the chest. Both are slight in the early stages and increase gradually with development of the disease. Other symptoms and signs, as coughing, frequent colds, pains in the chest, and X-ray findings, are very important in making a diagnosis.

5. The symptoms and physical signs in

first-stage silicosis are vague and indefinite, but when present the most common are shortness of breath, cough, expectoration, tendency to frequent colds, a decrease in lung expansion, limitation of movement of the chest, and a change in breath sounds, which become roughened on inspiration with relatively short expiration.

6. The symptoms and signs of second stage silicosis are those of the first stage, but are usually definite enough to enable the disease to be diagnosed without an X-ray.

7. In third stage silicosis the symptoms and signs are definite, and in addition to those given under first stage, night sweats, hemoptysis (probably due to infection) and gastrointestinal disturbances are often noticed. The most prominent symptom is gastrointestinal disturbance.

8. X-ray findings in silicosis show in the first stage an enlargement of hilum shadows and a "budding" or "beading" along the bronchial tree. As the disease progresses and the "buds" coalesce in large areas it becomes known as second-stage silicosis. When this develops into a large dense area in the center of the lungs it is usually referred to as third-stage silicosis. Diagnosis should be made after considering history, signs, and symptoms, including the X-ray.

9. Men having silicosis are more susceptible to tuberculosis than normal men.

10. Men with silicosis can improve in suitable surroundings to recovery in the first stage, can improve materially in the second stage, and somewhat in the third stage.

11. The elimination of silicosis among miners depends on preventing the formation of dust by wet mining methods—wet drilling and wetting sides, roof and bottom, muck, and rock piles; the use of sprays and water blasts to lay the dust after blasting; good mechanical ventilation to replace dusty air with clean air; and physical examination of all miners before employment and periodically thereafter.

12. All of these means of prevention must be practiced to insure success.

**DISCUSSION:** *Dr. P. M. McNeil, Oklahoma City.*

This paper is one of the best I have ever heard on silicosis. We do not see any cases

down here except cases exposed to cement and various other forms of dust. I wish to ask exactly how long it takes for cement and other things of that nature to produce silicosis and what parts of the state we get silicosis production from?

*Dr. C. E. Bates, Oklahoma City:*

I would like to ask Dr. Meriwether, if he has had any experience among miners where the cases are from explosions.

*Dr. F. V. Meriwether, Picher:*

The gentlemen have asked a number of questions. I might say practically all dust presents definite X-ray pictures and where you have had considerable experience you can tell the dust by the X-ray picture. In some instances men have worked in several kinds of dust and it is rather confusing. In silicosis the X-ray picture is that of a snow storm.

Silicosis develops after a long period of time. In Picher it takes about 12.3 years on the average. When the conditions are bad the time is reduced to three years or as short a time as one year.

In some 30,000 cases we have only found, I think, five cases of malignancy of the lung. Malignancy is comparatively infrequent. With reference to the effect on the lungs following a mine explosion, it apparently does not affect the lungs, but it definitely does affect the brain. I have seen men become insane following a mine explosion.

During the past five years since we have been engaged in this study silicosis has been reduced 85%, tuberculosis 70%, syphilis 60%, but gonorrhea has not been reduced. We feel like we are accomplishing some eradication of the dust diseases in Picher.

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PROTEIN MILK INDISPENSABLE IN SUMMER DIARRHEA CASES

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A new protein milk in sterilized liquid form that is especially recommended for cases of summer diarrhea, is now available to physicians. It is probably one of the most convenient milk products ever offered to physicians as it is in concentrated liquid form and hermetically sealed in small six ounce cans. It never gets rancid and keeps in any climate. Since it is sterile, boiling is unnecessary.

This useful new product is identified by the trade name SMACO product number 201 Liquid Protein Milk and is prepared by the Research Division of S. M. A. Corporation. Many physicians refer to this product as Casein Milk, Eiweiss Milch or Finkelstein formula.

## LEGAL VS. PHYSICAL DISABILITY IN COMPENSATION CASES\*

WM. H. BAILEY, A.B., M.D.  
OKLAHOMA CITY

The physician or surgeon who treats the class of cases coming under the jurisdiction of the Workmen's Compensation Act of the State may have been struck with the difference between the estimate of the degree of permanent disability of the patient from an industrial standpoint that he has made and the amount allowed by the Industrial Commission. For this latter factor I have chosen the term "legal disability."

It may have occurred to some of you that you have had a case in which you had secured unusually good results. Take a fracture case, for instance; you secured good anatomical results and the function was restored to normal. It is natural and desirable that we should feel a little proud over our good results. It is quite a surprise, almost a shock, to have the Commission allow the patient \$300.00 to \$400.00 for permanent partial disability. But you must not feel badly nor get "sore" about it. It may not be because of a true physical disability that the claimant was allowed the compensation but because of the legal disability that he was able to establish.

There are factors, other than medical, involved, which permit of such a decision being legally given at the present time. Even the medical testimony does not always influence the decision of the Commission as the predominance of evidence would seem to indicate. The Commissioners sit as both judge and jury. The evidence given by one doctor may out-weigh the testimony of three or four other physicians, in the mind of the commission.

The following is a case in point. A man received an injury while working for a street-car company. The company's doctor and three other physicians employed by the company to examine the man testified that they could find no evidence to support the claim of disability alleged. One doctor employed by the patient's attorney testified that he found a condition which he estimated would give the patient a 60% total permanent disability. The case was decided by the Commission according to

the testimony of the patient's physician and the payment ordered on that basis. It was legal but was it just?

The Compensation Act is founded on a basic and just principle. It is right that a business shall carry as a legitimate expense against its operating cost the wear and tear on its human machinery the same as it does on its engines and boilers or the depreciation on its buildings and equipment. The time has passed when the State should be allowed to pass better laws for the protection and health of its hogs than it does for the health and happiness of its people. If an able-bodied man is injured in any industry in line of duty so that he is partially or wholly disabled from an industrial standpoint, he should receive from that industry an amount of money sufficient to compensate him for the degree of disability received. On the other hand, the industry should just as surely be protected from unjust claims. Simply because an employee has received a fracture or a sprain or an injury of any kind is not a competent reason for his receiving a sum of money as settlement for that injury, unless real physical permanent disability results. The Compensation Act provides for his loss of time by the weekly payments that he gets. It also takes care of all his hospital and medical bills. It was not intended as an accident claim agency where damages for injuries were to be obtained.

The Act was passed for the protection of the employee. It makes no difference whether the money paid comes from New York or Hartford or any other place outside of Oklahoma. In the last analysis it comes from the community where the accident occurs. It becomes a claim on society at large.

The injured employee is very apt to take the position that because he has been injured someone owes him something. He builds up his claim and presents it before the Commission. The Compensation Act provides that this claim shall be settled on the facts in the case. The Supreme Court has ruled that the Commissioners must give their decision on facts supported by evidence and there it stops. The respective weights of the facts presented does not concern them. Those points the Commission alone decides.

Now, what of the status of the doctor in these cases? When you have been the attending physician in a case your posi-

\*Read before the surgical section, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1931.

tion is secure and you should be able to give an accurate and fair estimate of the condition of the patient. Your opinion of the per cent of permanent disability should not be very far from correct. Take, however, another situation. The patient is sent to you to examine for the purpose of estimating his permanent disability, if any. The relation then between you and the patient is entirely changed. It is no longer a doctor and his patient but it now becomes an examiner and a claimant. The claimant has reviewed the facts in the case many times before in his own mind and with his attorney. Either unconsciously or because of coaching he withholds some facts from the examiner. Often these facts are very important and if they had been known by the examiner would have put quite a different light on the symptoms and have caused him to have made quite a different interpretation of his findings.

Take the following case as an example. A patient received an injury to his knee. The doctor employed by the man's attorney to examine him and to estimate his disability, diagnosed a fracture or dislocation of the internal semi-lunar cartilage of the knee joint. He estimated a 50% permanent disability for the knee. This was an accurate diagnosis and a fair estimate of the disability. But the facts that were withheld from the examiner and which were brought out by the previous testimony, which the examiner did not hear, were that two years before the patient had received a similar injury to the same knee for which he had received a settlement of 50% permanent disability for the knee. Also, on several occasions since, the knee had locked and was followed by the same group of symptoms from which he was now suffering. Was it fair that he should again receive disability for that knee? Can you imagine the surprise and embarrassment of the doctor when presented with these facts for the first time on the witness stand?

How can these difficulties be avoided? Should we take time to consult with the other doctors in the case? Should the attending physician be the only one allowed to testify or should he not be permitted to testify at all? Should the Commission appoint a referee to examine the claimant and consult with the other doctors or should this be a board of three physicians? Should any medical testimony at all be presented at the hearing or should

the examining board or the referee simply submit their report in writing to the Commission and only non-medical facts be presented at the hearing? Expert testimony at the present time is a farce and almost worthless. It usually confuses rather than clarifies the situation. If you look long enough you can find doctors to support with an opinion practically any point which you wish to present. An expert can give as his opinion anything and that opinion cannot be impeached. If the doctors in the case could be permitted to withdraw to a room by themselves and hold a consultation the same as a jury does they could very soon bring into line any physician who was at wide variance with the majority. There will always be a difference of opinion among individuals, doctors are no different from other people in this respect. But these differences could be compromised and adjusted in conference.

The examining doctor should have access to all the facts. He should consult with the doctor treating the case, with the adjuster for the insurance company and with the claimant's attorney. There should be some uniform method of estimating the per cent of disability by certain specific facts as, extent of immobility, deformity of the part, the degree of atrophy, etc., each carrying a definite number of points. The amount of pain alleged can only be estimated as it cannot be measured. It is only fair that pain be considered but in claims for disability it is a very unsafe symptom and must be considered in that light. When it comes to the question of an accidental injury aggravating, activating or in any way affecting a previously existing condition or affecting a part so as to aid some subsequent condition developing there is always a wide variance of opinion. And who can definitely tell to what extent this has been a factor? A conference before the hearing might even be able to settle this point.

I mention a few additional points only to condemn them. There may be unprincipled doctors, who working with slick lawyers will present claims and support them with testimony that are so far out of line with what other examining physicians are able to find that it makes one shudder. No law or procedure can prevent such unjust practice. Education and not legislation must handle this factor. Then there are insurance adjustors that have been known to ask physicians to submit

false reports and so cheat the injured man out of a just compensation for actual disability. Doctors have been reported to have been offered a certain per cent of the award received for examining and testifying in cases. Still others have been accused of offering a certain per cent of the medical fee to adjustors and attorneys who would send them patients to examine. We can only lessen such practice by upholding the highest ethical standards for the profession, and both the medical and legal professions punish such individuals by expulsion when such conduct can be proven.

It is not just to say that because a doctor is regularly employed by an insurance company or the employer, that he will always give as his opinion an extremely low and unfair estimate of the injured man's permanent disability. Doctors so employed should be especially careful of this point. On the other hand, we should not accuse a doctor employed by the patient or his attorney of being unfair in his opinion and always favoring the patient. Here again the doctor must be unusually cautious so as not to give any just cause for criticism.

We should strive by every means possible to have the medical testimony in compensation cases agree in the major points at least. Let there be a free discussion and adjustment of opinion among the doctors on both sides of the case, since there must be two sides. If one doctor refuses to change his opinion, have the joint opinion of the other doctors so strong and positive and so unanimous that the opinion of the man out of line will be overwhelmingly out-weighed. Then the Commission will not become so confused that their decision will be merely a mental reaction but will be a clear opinion based on true conditions and facts. If this can be brought about we will see legal disability becoming equal to and the same as physical disability. This to my mind is the intent of the Workmen's Compensation Act.

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#### FOUR TYPES OF ENCEPHALITIS

Milo K. Miller, South Bend, Ind. (Journal A. M. A., July 18, 1931), reports four types of encephalitis recently encountered in his practice. They consist of one case each of mumps meningo-encephalitis, postvaccinal encephalitis, measles encephalitis, and hemorrhagic encephalitis following arsenical therapy (sulpharsphenamine).

#### DIAGNOSIS AND TREATMENT OF ARTHRITIS\*

EDWARD K. WITCHER, M.D.  
TULSA

I have no new and startling information to bring you upon the subject of arthritis. My purpose is to emphasize certain phases of the subject which in my experience have seemed of great importance.

In much of medicine, particularly the field of internal medicine, the doctor assumes the role of a detective. The figure seems particularly suitable in the disease known as arthritis. The detective hears the patient's story, observes the swelling of the joints, palpates the joints, manipulates the joints, uses the X-ray and observes atrophic or hypertrophic changes in the joints, takes a careful history with particular reference to the onset, both remote and immediate, scans the family history for other arthritics, elicits a careful past history for the purpose of discovering an infectious disease as the cause of the arthritis. Whatever the deduction up to this point the patient is subjected to complete physical examination with a certain minimum of laboratory work.

Arthritis is essentially a clinical problem, not a laboratory problem. The routine laboratory work such as complete blood count, urinalysis, Wassermann, are done in all cases. Complete blood chemistry examinations are not frequently indicated. Sputum examinations in patients suspected of chronic lung infection are done. Stool examination after the three day Schmidt diet is done only in selected cases.

The blood count is of especial interest because a low red count is a reminder of the need for instructions for a blood building diet and possibly for some stimulation of the hemopoietic system. The differential count is of value in estimating the importance of an identified or unidentified focus of infection.

In the physical examination with the patient stripped the posture first attracts our attention. The source is not to be sought here but the obese arthritic with flat feet may not complain of the pains in the extremities with such emphasis as to demand proper attention to the orthopedic care of his feet.

\*Read before the section on General Medicine, Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 11, 12, 13, 1931.

Ghrist and Hench remark: "A common symptom in arthritis, periarthritis, or muscular rheumatism is marked stiffness and pain when the patient awakens in the morning, after a recumbent posture has been maintained in repose. Some of these patients experience such stiffness after even shorter periods in normal positions, such as an hour or two in the theater or in church, or even fifteen minutes in a chair. If the posture is at all abnormal or cramped, the discomfort comes on sooner and more readily. It is noteworthy that several patients had definite, altho minor, exacerbations following such temporary inactivity and in one instance marked re-crudescence of disability in the joints was instigated by several hours' maintenance of a cramped position of the lower extremities during sleep. A lag in the circulation of the joints and muscles dependent on inactivity is generally blamed for the subsequent increase in discomfort. The underlying alteration in the chemical constituents of the tissue is not known, but has been thought to be one of suboxidation and partial tissue narcosis. At any rate it emphasizes the dictum: "Motion is life for the arthritic patient" and is one of the reasons why early morning physiotherapy is necessary for many to limber up the joints.

Attention to studies on the physiology of sleep may give a clue to the cause of increased pain in the early morning. During sleep there are reductions in basal metabolism, alterations in vasomotor tone, and reduction in blood pressure, all considered potential factors in changing the sensory phenomena of inflamed joints. It may be that the biologic variations which occur during sleep, as part of the cycle of day and night, are, to a lesser degree perhaps, the same as the majority of those attending the monthly cycle in women, which is attended by menstrual arthritic exacerbations."

The skin is noteworthy in the examination of any patient but particularly so in the patient with arthritis. In the ambulatory patient with chronic arthritis the skin may be shiny and dry over the affected joints. Such a condition usually obtains when the bony changes are atrophic. The skin over the joints may be puffy or tight if the joint is decidedly enlarged. Measurement of such joints may reveal enlargement over the normal circumference in the individual. If the treatment

produces favorable results the size of the joint may decrease perceptibly.

All the deviation from the optimum in posture should be noted, carriage of shoulders, stooping of shoulders, degree of straightness of the back, tipping of the pelvis, knock knees, and flat feet. Skeletal abnormalities in general as with flat feet cannot be assigned as the cause of arthritis but thru proper handling and correction may assist in the management of the patient and the prevention of discomfort.

So much for inspection. The physical examination is now carefully done with special reference to the foci of infection, tuberculosis and syphilis.

The foci of infection most often mentioned are the two with which the layman is most familiar, the teeth and the tonsils.

"A chain is no stronger than its weakest link." At this point the clinician must have a competent dentist. Abscessed teeth, devitalized teeth, buried tooth roots, extensive pyorrhea with actual infection of the bone must be demonstrated non-existent. We are all familiar with the chances of error in dental X-rays and their diagnosis; likewise we are all prone to accept a more or less routine dental report. My standard at present is a report from a dentist of unquestioned thoroughness and ability whose verdict is based upon careful personal examination of teeth and gums plus a full mouth X-ray. I find dentists inclined to X-ray carefully and in many cases to re-X-ray. I do not allow a devitalized tooth to remain no matter how innocent it may appear in the film.

The teeth settled attention in the head is directed to the sinuses and the mastoid cells.

The septic tonsils, the suspected tonsils, in fact tonsils of any sort are removed. Remnants of tonsils, lingual tonsils, pieces of tonsils held down by scar tissue are removed.

The chest in the form of chronic bronchitis or bronchiectasis may be a focus. If I find such trouble in the chest I have the nose and throat man check the sinuses again. There is a connection between sinuses and chronic non-specific lung infection.

The abdomen has its gall bladder, appendix, and lower bowel infections. The genito urinary system has its fallopian tubes, uterus and cervix or its vesicles and prostate gland. All must be investigated and in many cases reinvestigated.

Students of arthritis are agreed that certain characteristic changes in the joint tissues do occur. Osler concludes that so called rheumatoid or proliferative arthritis and osteoarthritis or degenerative arthritis are different manifestations of the same disease. Certainly atrophic and hypertrophic changes are observed in the X-ray findings of a single joint. The joint changes in rheumatoid arthritis are characterized by their vascular nature including round cell infiltration as the result of stagnation produced by the constriction of arterioles and the dilation of capillaries. In osteoarthritis degenerative changes in the cartilage are the initial ones and are followed by marginal proliferation of cartilage cells and bony change. Round cell invasion of the tissues is not marked.

Experimental studies of the causative organisms have yielded divergent results. Competent men have reported their ability to secure positive blood cultures. Other men have reported that they are unable to do so.

Harry N. Margolis and Anna H. E. Dorsey of the Mayo Foundation report as follows:

"On analysis of our data, it does not seem surprising that positive cultures are obtained with such relative infrequency. As we have indicated, the average duration of the symptoms in the cases of arthritis was a matter of many years. The operations were usually performed to correct the result of ankylosis. In all cases, absolute quiescence of the process was assumed before they were deemed suitable for such operations. Even those patients who presented hydrops of the joints had usually had the effusion for a period of months before coming to operation. It would seem, then, that the organisms we obtained were only those which retained their viability despite the natural reparative processes which had been exerted by their affected tissues over periods of months or years.

It is clear that the absence of bacteria in cultures of arthritic tissues, at the time when such material becomes available to us for study, cannot be construed as proof of the non-infectious nature of the disease. On the other hand, the finding of positive cultures, even in a small percentage of cases, is strongly suggestive of its infectious etiology. It is unfortunate that circumstances do not permit of bacteriologic cultures of arthritic tissues,

particularly of the epiphyseal marrow, during the early, active stages of the disease.

Of the bacteria that have been isolated from tissues in chronic arthritis, the non-hemolytic (green-producing and indifferent) streptococci have been shown to play the most prominent part. In the absence of final proof of the etiologic relationship of any of the organisms that have been reported, we must conclude tentatively that various types of bacteria may be causative in chronic arthritis. That the apparent similarity of pathologic pictures must not imply bacteriologic unity of the etiologic agent is based on fact.

The predominance of the streptococci among our positive cultures, and among those reported by others, indicates that these organisms probably are of first importance from an etiologic standpoint in chronic infectious arthritis.

Crowe contends that staphylococcus albus is the primary cause in rheumatoid arthritis and that the streptococci produces osteoarthritis.

I have seen no convincing evidence of allergy in a basic relationship to arthritis. Surprisingly quick and good results with non-specific protein therapy are so interpreted by some writers. Ralph Pemberton quotes Zinnser as follows. "Rheumatic fever is an allergic condition in which the body is sensitized to a bacterial antigen. It is the only explanation consistent with the varieties of bacteria isolated and with the frequency with which such factors as exposure seems to precipitate the attack."

He also says: "There remains in chronic arthritis, following the removal of even causative infections, a more or less chronic dislocation of physiology which may persist a long time or even permanently. One may almost say once an arthritic, always potentially an arthritic."

Ernest E. Irons (Chicago) has discussed arthritis in connection with foreign protein and vaccine therapy. He says: "In the patient with chronic arthritis there are usually more than one and often several factors contributing to his pain, deformity and disability. The chronic feature of the arthritis may be due to the recurrence of acute exacerbations. Such cases are often associated with chronic local infections and constitute the group of chronic arthritis which affords examples of relief by the eradication of infection."

"The arthritis may be of the atrophic type with swelling and later loss of cartilage and atrophy of muscles, or of the hypertrophic type with proliferation of joint margins and but little muscular atrophy. While infection is believed by some to be one of the chief factors responsible for the former of these two, in both groups other factors, including heredity, poor nutrition, metabolic disturbances, impaired local blood supply, and trauma resulting from hard work and from bearing increased weight, to mention but a few, play a large part in the production and progress of joint disease and disability. Pain may result from mechanical causes as in hypertrophic or osteoarthritis and may subside spontaneously."

"The permanent relief of pain and disability in chronic arthritis in which etiology is varied in which the course is characterized by spontaneous remissions and exacerbations at intervals of months seems unlikely to result from the use of one remedy, such as foreign protein injections or vaccines; and when improvement occurs following treatment, it seems necessary to reserve some credit for other possible factors."

"The evident difficulty of supplying a comparable control series does not justify clinical conclusions drawn from uncontrolled observations."

"In still other disease groups treated by vaccines or milk injections, one function of the treatment seems to be that of a sort of "occupational therapy" in which patient and physician participate, whiling away the time until the natural forces of healing bring about recovery."

The treatment of patients with arthritis is beset by many bugbears. The problem is often one of treatment in the absence of a known cause. If one organism were always demonstrably present we might have a specific serum. If one, or even one of a dozen foci were always the one cause its removal might at least promise improvement. If we could be certain that the basic cause were allergic we might use non-specific protein therapy with great confidence. None of the preceding hypotheses being true we must use empirical methods.

The application of even a fraction of the methods of therapy would require more years than the average arthritic patient expects to live and surely longer than he will be willing to wait for the cure.

Somewhat in the order in which I have found them effective are: (1) Removal of foci of infection; (2) Shock treatment using typhoid vaccine intravenously and aolan intramuscularly; (3) General building up process based on adequate rest, sunshine, and good general diet; (4) Physiotherapy—consisting chiefly of persistent application of heat by various means such as the infra red light baking cabinets, electric pads; (5) Sodium iodide intravenously and by mouth; (6) Monoiodocinphen; (7) Calcium ortho-iodoxybenzoate by mouth, Ammonium ortho-iodoxybenzoate intravenously.

#### O POSTVACCINAL MYELITIS

Thomas William Brockbank, Washington, D. C. (Journal A. M. A., July 25, 1931), calls attention to the fact that the acute inflammatory lesions of the nervous system reported as occasionally following vaccination against smallpox usually have presented the clinical symptoms of encephalitis or poliencephalitis. In cases with paramount spinal cord involvement, even when the lesions accompany smallpox itself, the sensory impairment has been negligible or transient. As a contrast to this generally accepted picture, he reports a case of postvaccinal myelitis with complete spinal anesthesia persisting up to the level of the ninth dorsal segment and paralysis. The clinical and laboratory signs of spinal meningo-myelitis are presented. The sensory level seemed to indicate that the inflammation in the acute stage and progressed only to the level of the fifth dorsal segment, although motor signs pointed to mild inflammatory involvement in segments considerably higher. The sensory level two months after onset was in the eighth dorsal segment. The prodromal symptoms began on the thirteenth day after vaccination.

#### O HOW TO CORRECT DIARRHEA

After a starvation period of twelve to twenty-four hours on boiled water or gelatin water ( $\frac{1}{3}$  oz. of gelatin to one pint of boiled water), the infant should be given Protein S. M. A. (Acidulated) diluted 4 level tablespoons with 9 ounces of water, and without any additional carbohydrate.

	1st Day	2nd Day	3rd Day
Severe cases	3 oz.	6 oz.	9 oz. (*)
Medium cases	10 "	15 "	20 "
Mild cases	15 "	30 "	

(\*) Until the proper amount for their age and condition is reached, which is 200 c. c. per kilo of body weight per twenty-four hours, or three ounces per pound of body weight per twenty-four hours. However, the total twenty-four hour intake need not go above thirty-two to thirty-five oz. or 960 to 1050 c. c.

After 48 hours or when the stools become normal, SMACO (400) Maltose and Dextrins (Spray Dried) should be added gradually, beginning with one oz. to the quart, and increasing until the infant is gaining steadily in weight. In certain cases, it may be necessary to increase the carbohydrate to a total of 12 to 15% (3 to 4 oz. of carbohydrate to the quart).

## THE TREATMENT OF FRACTURES BY SKELETAL TRACTION

S. R. CUNNINGHAM, M.D., F.A.C.S.  
OKLAHOMA CITY

In the short time allotted for this clinic, I shall attempt to demonstrate the peculiar adaptability of skeletal traction for fractures of long bones. It will be shown that a large percent of fractures of bones with a shaft are associated with open wounds or burns of the soft parts, making it impossible to use plaster of paris casts, or to use skin traction.

At noon today, Doctor Henderson and I were asked "Why do you stress treatment of fractures so prominently on your program, and why do you rely so much on the X-ray in the care of fractures?" The doctor went on to say that he thought very careful physical examination should be taught and practiced in the care of fractures.

I agree with him in part, but certainly we can't neglect the careful and wise use of the X-ray in treating fractures. Carelessness in physical examination often results in unrecognized associated nerve or blood vessel injury. It is not uncommon to find pathologic fractures resulting from metastasized malignancies or from benign bone cysts.

We believe certain types of fractures can be better treated than heretofore.

We believe there has been too much useless and too much complicated apparatus used, and some have resorted too much to open surgery.

There has been a rapid increase in the number of fractures, and at the same time a great change has come in the severity of fractures. The public also is demanding better treatment and better results than has heretofore been afforded. Thirty years ago in a city of 200,000 population we did not see as many fractures from all causes as we now see in a city of similar size resulting directly and indirectly from motor cars. We have observed, also, that motor cars, modern heavy construction and oil field work cause much more severe and complicated fractures than we had to deal with a few years back.

Only a few years ago we seldom saw fractures of the spine, central fractures of the hip, or fracture dislocations of the ilium, and now none of these fractures are uncommon.

Certain individuals doing much fracture work have perfected mechanical devices which they use well and with which they secure results satisfactory to them. Others doing like work have perfected an open method and they therefore are apt to infer that only the unskilled surgeon uses mechanical methods.

I do open replacement of fragments under certain circumstances, but never leave any form of non-absorbable material.

At a meeting of railway surgeons within the last year, I heard a good surgeon discuss as follows:

"I am in favor of plaster of paris as a fixation method of all fractures. The main defect with other forms of traction is that you must employ about six nurses to watch your frames, to keep your traction on, and to keep the weights adjusted. If we put a case up in plaster of paris we know exactly where we have our fracture and that it is going to stay right there." I am glad he can do that. Another stated:

"In certain cases open operation is absolutely in demand. Those who do open operations are impressed with the fact that a frequent cause of non-union is tissue interposed between the ends of the fragments whether skeletal traction or plaster of paris has been used, in which event open operation *must* be done, and I can see no more danger than in operating on the brain or operating in the abdominal cavity."

I can't agree with either one of them. I think they are both partly right. I have chosen today to demonstrate a method that we use in cases where neither skin traction, plaster of paris casts nor open replacement of fragments is advisable.

There are a few cardinal principles in the treatment of fractures and one must select the best adaptable method for each fracture.

It possibly would be well here to give the percentages of certain types of acute fractures coming under our observation. Of two thousand consecutive fractures of bones of the shaft seen since January 1, 1928, nine per cent were fractures of the femur, 16 per cent of which were open fractures; seven per cent were fractures of the humerus, eight per cent of which were open fractures; 11.5 percent were fractures of the radius, eight percent of which were open fractures; 8.5 percent were fractures of the phalanges of

the fingers, seventeen per cent of which were open fractures; thirteen per cent were fractures of the metacarpals, twelve per cent of which were open fractures; and eleven per cent of all fractures were of the tibia, fourteen per cent of which were open fractures.

In civil life 11.85 per cent of all fractures of bones of the shaft are open fractures and many of them are best treated by skeletal traction.

The treatment of fractures by skeletal traction is not new. While Dean and Professor of Surgery at the Medical College of Indiana thirty-five years ago, Dr. Joseph G. Marsee practiced and taught the use of skeletal traction in fractures of bones of the shaft.

In 1909 in a paper entitled "Common Injuries of the Hand" I described practically the same method we now use for fractures of the metacarpals, metatarsals and phalanges.

The various forms of extension tongs have been very efficacious and their use has not deserved the unfavorable criticism it has provoked.

I think we have found that the small steel wire drill with suitable spreader to hold wire and prevent bending offers advantages over other methods of skeletal traction.

The Kirschner drill (hand or motor driven) and pins (furnished in this country by V. Mueller & Company, Chicago) are simple of use and applicable to all fractures of long bones.

(The author demonstrated by numerous slides the varied uses of skeletal traction.)

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#### CHRONIC SYPHILITIC (?) GASTRITIS WITH TOTAL GASTRECTOMY AND PERNICI- OUS ANEMIA

Allan K. Poole and Lewis C. Foster, New Haven, Conn. (Journal A. M. A., June 27, 1931), report a case of chronic gastritis, probably syphilitic, in which the patient has lived five years after a total gastrectomy with the development of pernicious anemia about three years after the operation. The response to intravenous liver extract was immediate and quite striking. Desiccated hog stomach was later used instead of liver and appeared quite adequate in maintaining the blood count and the patient's general well being.

#### RATIONALE OF VACCINE THERAPY IN CHRONIC INFECTIOUS ARTHRITIS

E. GOLDFAIN, M.D.  
OKLAHOMA CITY

Within the last number of years, a great deal of bacteriological research work has been done by various workers in the field of chronic arthritis. They have concerned themselves with the endeavor to isolate some specific organism, if possible, which acts as the etiologic factor in the causation of arthritis. Outstanding amongst these workers may be mentioned Dr. Reginald Burbank, Dr. L. J. Hadjapoulis, Dr. R. L. Cecil, Dr. Ralph Pemberton, Dr. James C. Small and a host of others. Of course, in their efforts they have also kept in mind the application of this knowledge in a practical way; that is, how best they might utilize information thus obtained in the treatment of affected patients. For it boots but very little to do work of this kind if same cannot in the end point toward a more rational and logical attack upon the diseased condition.

I wish to lay before you the work done by the various investigators and show how their studies may be applied in the treatment of arthritis, possibly, to compare these in an impartial manner, and come to some opinion as to whether or not the different methods of approach of these workers do not at bottom seem to be more or less similar; that they are really utilizing one and the same idea in their therapeutic attack upon this diseased state, with the exception that their technique is somewhat different.

First, we will set forth the complement fixation test of Dr. Burbank. In this test, Dr. Burbank applies the principles that are used in the Wassermann test in identifying organisms that may be causing a chronic infectious state in the patient. This test is as follows: The blood of the patient is drawn as for Wassermann test. The serum is separated from the clot in the tube, which has been standing at room temperature overnight. Test tubes are set up, one for each type of antigen that is to be tested. Control tubes are set up in order to test whether or not the patient's serum may happen to be anti-complementary. To the four control tubes is added .01 .02, .04 and .06 cc. of serum. Saline solution 0.5 cc. is added to each of the control tubes. To the tubes that are for the fix-

ation test on the patient's serum, there is added 0.04 cc. of patient's serum and 0.5 cc. of the antigen. The tubes are put in a water bath for thirty to forty-five minutes at 37 degrees centigrade. They are then removed and to both control tubes and the special tubes is added 0.5 cc. of  $\frac{1}{2}$  per cent sheep cell suspension containing anti-sheep hemolysin. These tubes are then incubated and watched until the control tubes are hemolyzed. When such has occurred, the tubes are removed and readings are taken as to whether they are one, two, three or four plus positive to the bacterial antigen. This gives us information as to the type of organism that is causing the disturbance in the patient. We can then make a vaccine of such organism and administer same to the patient in proper dosage.

Dr. Cecil has isolated an attenuated hemolytic streptococcus which he thinks is the causative organism in chronic infectious arthritis. He, therefore, tests his patients by the agglutination method. Ten tubes are set up. To the first tube 0.9 cc. of saline or clear broth is added. To the other nine tubes  $\frac{1}{2}$  cc. saline is added. To the first tube is added 0.1 cc. of the patient's serum. This is well mixed with a pipette and 0.5 cc. from the first tube transferred to the second tube, well mixed. 0.5 cc. is thus carried from the preceding tube to the succeeding tube, except the last one which does not receive any patient's serum. It is the control tube. 0.5 cc. antigen is then added to each tube. The antigen is a twenty-four hour broth culture of this specific attenuated hemolytic streptococcus. This, therefore, gives dilutions of the patient's serum, varying from one to twenty in the first tube, to one to 5120 in the ninth tube, the tenth being control, and not containing any serum. The tubes are shaken and put in a water bath at 56 degrees centigrade for two hours. From the water bath they are put into the ice box overnight. They are read the next morning.

Dr. James C. Small has isolated what is known as an indifferent streptococcus, which he has found to be present in rheumatic fever and in various cases of infectious arthritis. He has found that these organisms produce both antitoxins and by extraction antigenic substances. He feels that the reason for a patient reacting as he does in chronic infectious arthritis may be due to extreme sensitization to these organisms, developed over a long

period of time. He, therefore, makes an antigen, which is a saline extract of these organisms, and this antigen is diluted in some cases to ten to 16 power. For instance, if the antigen is the saline extract of a dilution of his organisms of one to one-million, that is considered to be as ten to the -6 power. Then as this is increased to ten million, it is ten to the -7 power, and so on until sixteen cipher dilution is reached. Of this last dilution, he will start with 0.05 cc., giving as is evident from the above discussion an almost ridiculously small injection. Yet if this dosage is increased too quickly or in the extremely hypersensitive case, a reaction from such dosage may be secured, showing that whatever is there is extremely potent.

Dr. Touart of the French Hospital tests his patients with organisms isolated from the various parts of the body, such as the teeth, throat, tonsils, but most especially the stools. The autogenous organism is centrifuged and one part of that is added to ninety-nine parts of one quarter per cent tricresol saline solution. Of this, one per cent dilution, 0.01 cc. is injected intradermally. A saline control of the same amount is injected at a small distance away. Other control strains of organisms similar to the organism that has been isolated are also injected in the same amount in order to control the reactions obtained from the autogenous organism. For example, if a streptococcus hemolyticus has been obtained from the patient, a control strain streptococcus is also used. The formation of a wheal is noted in fifteen minutes. The patient is then requested to return in forty-eight hours for a final check up, at which time, these tests are observed and records made as to whether an areola, wheal, tenderness or ecchymosis is present. If the reaction is positive, the patient is then treated with that particular organism in the form of a vaccine.

If we glance back at the above resume of the methods for diagnoses bacteriologically of these various investigators, we are immediately struck by the fact that they, all leaders in their work, are apparently of one and the same opinion: that infectious arthritis is, as the name implies, caused by an organism, most likely of the streptococcus family.

Dr. Burbank, based upon his complement fixation and autogenous cultures, places his main reliance on vaccine therapy. He gives his vaccine in very small

doses, apparently feeling that the effect of the vaccine is due to other causes than the bacterial body instigating antibodies against itself when injected subcutaneously.

Dr. Cecil also gives vaccines in small doses, sometimes ranging as low as fifty thousand, intravenously, made from his specific attenuated hemolytic streptococcus.

Dr. Touart, in his skin testing work, also seems to follow the same principle, in that he uses vaccines in very small amounts for treatment of his arthritis patients. The vaccine is made of the same organism that the patient has reacted to with a positive skin test.

Dr. Small apparently carries this idea even farther and instead of giving any bacterial bodies to the patient, simply uses in his treatment a saline extract of his streptococcus cardio-arthritides which does not contain any of the bacterial cells but does contain highly powerful substances apparently attached to the bacterial cells and to which the patient has become sensitized. By using this antigen in very minute doses, he desensitizes the patient. By so doing, he seems to secure a remission of the active process.

It seems to us then, in conclusion, that the reason vaccine therapy in the past has not been as successful as it should be in arthritis may be due to three reasons. First, by heating the bacteria to 56 degrees centigrade for a sufficient period of time to inactivate them, some of these antigenic bodies, or a great portion of them may be destroyed. Secondly, the proteins are coagulated and altered in their structure by heating, and the patient is not being immunized against the type of organic substances to which he has become sensitive, and which is causing his diseased state. The third and more important consideration is that apparently we have, in the past, been overdosing our patients, so that their ability to develop immunity to these unknown antigenic substances has been overwhelmed. Instead of improving, they seemingly came to a standstill or even received injury from such overdose.

The lesson, therefore, that we learn from this review is that first: before we treat the patient with arthritis, we should have some idea as to the particular type of organism that has invaded the host repeatedly over a long period of time and

has established a sensitization in the host to itself. This being done, we feel that vaccine therapy is properly fundamental in the treatment of the arthritic. However, the vaccine that is prepared, should never be inactivated by heating. Instead, the organism should be rendered non-viable, through being treated with  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent phenol in saline solution. The vaccine is then given in very small doses, the size of the dose depending upon whether the patient reacts to it. If he does react, the dose should not be increased but kept at that point until further reaction of a focal nature is not secured, then it should be slowly increased. Always avoid undue focal or general reaction. If a general reaction is secured, the dose should be markedly reduced. Doses should be given every four to seven days.

I wish, however, to sound this word of caution at this time. When I say that vaccine therapy is to be the foundation of treatment of arthritis, I do not mean to imply that other measures are not to be taken in order to help the patient to as complete and thorough a convalescence as possible. The other measures would consist of physio-therapy, tonics, especially in the form of arsenic and iodides and cod-liver oil, elimination of foci of infection and the correction of any and all additional diseased states or disordered physiology that may be present.

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#### O TREATMENT OF UNDULANT FEVER WITH AUTOGENOUS ANTIGEN

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G. S. Shilling, C. F. Magee and F. M. Leitch, Moscow, Idaho (Journal A. M. A., June 6, 1931), report a case of undulant fever in which the Hektoen phenomenon of a positive typhoid agglutination appeared and served to obscure temporarily the proper diagnosis. The etiologic agent was isolated both by blood culture and by culture of the feces, and was identified as *Brucella suis* (Traum). A method of preparing a highly concentrated, relatively soluble, autogenous antigen is described. This antigen on intramuscular injection caused a complete and permanent subsidence of the infection in forty-eight hours.

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#### O DIABETIC LIPEMIA RETINALIS

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Lillian A. Chase, Regina, Sask. (Journal A. M. A., July 18, 1931), describes the thirty-seventh case of diabetic lipemia retinalis. The condition cleared up in seven days on insulin. Thirty-seven analyses of the blood for total lipids, total fatty acids and cholesterol were made. The blood lipids became normal in thirty-six days; the total lipids and total fatty acids dropped rapidly; the cholesterol dropped slowly and showed fewer daily fluctuations. The patient is now, one year later, 52 pounds (23.6 Kg.) heavier than on admission, and is sugar free on 20 units of insulin daily.

## ARTHRITIS

W. P. FITE, M.D.  
MUSKOGEE

Interest in arthritis has been greatly increased in the past five or six years, particularly in the last two. The book by Ely, about 1926, did much to clarify the subject of classification of this protean disease. In 1928, at a meeting of the American Committee on Rheumatism in Philadelphia, for purposes of classification, chronic arthritis was divided into two main types, the atrophic and hypertrophic. The atrophic type includes the various forms of acute and specific arthritides. The most difficult of classification are the non-specific types. Those who are familiar with the various manifestations of this form of the disease have considerable trouble at times in determining that it truly falls in this type. It is characterized by a certain amount of diminution of joint space and as a whole tends to ankylosis and there is occasionally a confusing exostosis of a minor nature about the borders of the joints in long standing cases. These joints often tend to a villous arthritis. Occasionally through spaces on the joint surface there is erosion of cartilage and there are granulating areas and a sharpening of the usual rounded contours about the borders of the joint. It may be a continuous condition associated with considerable discomfort, even with temperature. There may be periods of complete remission of symptoms in joints that have occasionally become quite disabling for weeks at a time. Indeed, these joints often in the interim between attacks show no arthritic changes demonstrable through the X-ray or physical examination and are symptom free. The specific forms of arthritis that might rightfully be classed in this group are tuberculous, gonorrhreal, syphilitic, staphylococca (septic), pneumococcic, and typhoid. Rheumatic fever, the arthritis that is sometimes but rarely associated with amebic colitis, that associated with chronic ulcerative colitis, and certain skin diseases (psoriasis) might also fall in this class. The so-called allergic joints, the fibroses around joints, lumbago and neuritides might rightfully be considered by analogy to belong to this same group. The usual non-specific atrophic arthritis is a disease seen almost entirely in the first three decades of life, or before middle age.

The second great group of arthritis, the hypertrophic form, which generally comes on at middle age or after, is characterized by loss of cartilage on the joint surface, by eburnation of the bone in these areas, and tends to the formation of exostoses about the borders of the joint and is seen most typically in the lower spine, knees, and in the distal phalangeal joints, giving rise to the so-called Heberden's nodes in the last. It is likely to occur in the knees of heavy individuals after middle life, in combination with the static arthritis of obesity.

Traumatic arthritis, which can arise either from trauma from without or from intrinsic trauma due to posture, may arise at most any age but usually does not occur until toward or after middle life and is usually a reaction on the part of the joint to a series of chronic traumata induced by derangement of joint mechanics or poor posture.

Gouty arthritis, which is characterized by remissions and in the chronic form with some deformity, and with tophi in the ears is given little consideration other than mention in this discussion, as are also the arthropathies secondary to lesions of the central nervous system, syringo-myelia and tabes, producing so-called Charcot's joints and pulmonary osteoarthropathy which is secondary to certain chronic lung and cardiac conditions.

At least 70% of non-specific atrophic arthritides have an infectious basis. The other 30%, according to a recent estimation, might be classed as non-infectious allergic joints. Recent work tends to show that the streptococcus cardioarthritidis in one of its forms is responsible for the 70% of atrophic arthritis and that the allergic joints result from an allergic reaction in joints that have been made previously sensitive by infection which has produced no arthritic reaction.

The specific arthritides, tuberculosis, syphilitic and gonorrhreal, are easily recognized. The others, largely by the foregoing history. Some interesting deductions have recently been brought out concerning gonorrhreal rheumatism which indicate that it at least may have an allergic basis. In other words, that unless that individual has been made sensitive by some form of previous infection, he will escape his gonorrhreal rheumatism.

The forms of drugs that have been used in the treatment of arthritis are multiple.

The commoner forms now in use are (1) the salicylates, (2) cinchophen. These two have little if any effect upon the arthritides other than that of lessening pain. (3) Amiodoxyl benzoate has been used quite extensively in the last few years with the idea that it raised the oxidation about the joints. Rather extensive personal use of this drug is not very encouraging. It seems to give some relief in acute exacerbations but these conditions also tend to subside with rest and physio-therapy which was used as an adjunct. (4) Autogenous vaccines, if properly made from the specific organism causing the arthritis seem to have very beneficial effects. Those who have used this method of treatment extensively are enthusiastic about it. Specificity of the organism is discovered by culture from the joint, or from the suspected focal region. Tests of agglutination and of animal inoculation are aids in determining the specificity. (5) Emetine is used in those rare cases where the toxins of entameba histolytica are responsible for the arthritis. (Ely tends to the hypothesis that the hypertrophic arthritides are quite likely caused by some protozoal infection in the intestinal tract). (6) Thyroid extract is beneficial in some forms associated with hyperthyroidism as is thyroidectomy responsible for the relief in some cases associated with hyperthyroidism. (7) Ovarian extract would seem to be indicated and is used in those forms of arthritis arising at or after menopause. (8) Vitamins especially vitamin B, associated with limitation of carbohydrate intake and increase in the protein intake, have proved of marked benefit in many cases of atrophic arthritis. (9) Non-specific protein (milk) and typhoid bacilli are being used extensively in the treatment, often with beneficial results.

In addition to drugs and biological preparations as enumerated, ganglionectomy both in the thoracic and lumbar regions has been practiced for the past five years in certain selected cases of atrophic arthritis of a progressive type meeting certain circulatory conditions. It has been noted that in arthritics there is often a circulation deficiency about the joints and a relatively low basal metabolic rate. Consequently anything that will better the general condition of the patient and his general circulation, will tend to benefit these cases. With ganglionectomy a permanent dilation of the arteries in the ex-

tremity is obtained and this in time leads to a moderate and sometimes marked relief of arthritic symptoms in properly selected cases.

In our handling of many hundreds of these cases in the past seven years, we have resorted chiefly to the eradication of the focal infection, rest of the affected joint and physiotherapy in the form of heat, and in a fair percentage non-specific protein therapy or autogenous vaccines. The results in the acute forms are often quite striking and even in the chronic recurrent forms the relief is marked. The marked tendency to recurrence has been noted. Certain forms go on to deformities and ankylosis in spite of anything we can do. It has been noted that the same individual may be readmitted for arthritis time and time again with very little if any but his subjective symptoms to make diagnosis upon. After a period of rest and treatment the acute symptoms subside and he can go back to his former occupation. There are others that have practically the same physical findings, that are never free of their symptoms and are continuously incapacitated from the usual forms of manual labor.

With a hypertrophic arthritis we have been able to do very little. Relief of bone changes can not be expected and as repeated study of these cases has shown that they are always of a non-infectious type, never giving positive cultures from the joint fluid, little is to be expected from protein therapy, autogenous vaccines and so forth. They are often given considerable relief by rest and heat. We encourage these cases after their acute exacerbations have subsided, to resume their activities as best they can, as they seem to do best when managed in this manner and the tendency to ankylosis is greatly lessened. It is remarkable the amount of hyperarthritic change there may be about the joint and yet very little diminution in the function of the joint.

The treatment of specific arthritides is directed toward the specific form present and along perfectly conventional lines. No recent advance in the treatment of these has been noted or used.

#### HEMOPHILIA AND FEMALE SEX HORMONE

Carroll LaFleur Birch, Chicago (Journal A. M. A., July 25, 1931), tested the urine of five hemophilic persons for the female sex hormone. From his observations he concludes that the urine of patients with severe hemophilia is deficient in the female sex hormone.

## OPERATIVE TREATMENT OF UNREDUCED DISLOCATED ELBOW

D. H. O'DONOGHUE, M. D.

Orthopaedic Department Oklahoma  
School of Medicine.  
OKLAHOMA CITY

While by far the greater percentage of deformities of the elbow joint consists of poorly replaced supracondylar fractures and are thus amenable to correction by the ordinary method of osteotomy, there is a certain percentage of cases which come to any large clinic for treatment which owe their disability to a complete loss of integrity of the elbow joint. Such cases are the result of unreduced dislocations at the elbow joint.

Since the deformity of a dislocated elbow, especially of the posterior type, is very evident, it is readily understandable that a very small group of the total number of dislocations remains unreduced. When this occurs, however, time is an all important factor since the difficulty of reduction increases rapidly with each day of neglect. After so short a time as two weeks it will as a rule become impossible to carry out reduction by any closed method. Any forced manipulation is likely to cause traumatization of the surrounding tissues without accomplishing the desired result.

In the case of unreduced dislocation of the humerus over the coronoid of the ulna the forearm is of necessity somewhat extended by the pull of the triceps tendon since the leverage of this tendon is vastly increased by the displacement of its fulcrum, the lower end of the humerus, forward. This leaves the joint with a small range of motion which is through an arc entirely beyond a right angle. For this reason disability of the extremity is out of proportion to the limitation of motion, since useful motion at the elbow joint is largely through a range within a right angle. As healing occurs in the new position the olecranon fossa and much of the space between the tendon and the humerus fills with scar tissue, obviously preventing replacement of the trochleas of the humerus into the olecranon fossa of the ulna.

The problem at operation is to reduce the deformity and at the same time to preserve some motion in the elbow joint which will represent the maximum func-

tion, *namely*, short of a right angle. A few degrees of motion from 60 to 120 degrees is of vast importance from the standpoint of function. Very little disability results if this range is preserved. While a similar range from 120 to 180 degrees is little better than a rigid elbow. A rigid elbow at 80 degrees presents more function than one whose range is from 120 degrees to complete extension.

In many cases there will be an associated fracture of one or both condyles as in the case to be reported, but this becomes purely incidental as the dysfunction is caused by the dislocation itself.

Dr. J. S. Speed of Memphis, Tennessee, has described an operation which seems to satisfy all the necessary requirements. *Namely:* (1) Replace the dislocation, (2) preserve the joint surface, (3) relieve the contracture of the triceps tendon, (4) preserve some useful motion in the joint with 90 degrees as the center of its arc.

I quote Dr. Speed's description of his operation. "An incision is made over the posterior surface of the elbow, beginning in the mid-line about four inches above the tip of the olecranon and extending down to just above the tip of the olecranon, where it turns slightly outward over the center of the external condyle of the humerus and the head of the radius for about two inches on the forearm. Skin flaps are dissected back, completely exposing the tendinous insertion of the triceps muscle and the posterior surface of the elbow joint. The ulnar nerve is next located, dissected up from its bed along the groove in the internal condyle and retracted out of danger. Beginning at its upper end, the tendon of the triceps muscle is dissected out and turned down leaving it attached to the olecranon. An incision is next made directly in mid-line, through the fibres of the triceps muscles down to the humerus, extending from three inches up on the shaft down to the reflexion of the joint capsule around the articular surfaces. Subperiosteally, all of the muscular attachments over the lower end of the humerus, both anteriorly and posteriorly, are stripped free with a periosteal elevator. When the attachment of the joint capsule around the condyles of the humerus is reached it is necessary to divide this with the knife or scissors. Some difficulty may be encountered in freeing the tissues around the internal condyles and along the anterior surface of the humerus just

above the joint, but it is essential that they all be loosened and the lower end of the humerus be completely mobilized. This difficulty will be greatly lessened if the incision has previously been extended down over the radius, exposing the head and a small portion of the shaft. There is often considerable callus formed over the posterior surface of the humerus around the olecranon fossa, due to stripping up of the periosteum at the original injury. This callus with the scar tissue in the olecranon fossa and incisura semilunaris is next thoroughly removed.

"Having completely mobilized the lower end of the humerus and exposed the capitellum and head of the radius, the first step in the reduction is now made. By simply twisting the forearm with gentle pressure over the capitellum, the head of the radius is made to glide forward over the capitellum into the normal position. If this is not easily accomplished it is a great temptation forcibly to skid the capitellum backward with periosteal elevator. Enough force should not be used to injure the capitellum, as a little more dissection will render force unnecessary. After the radius is reduced it is an easy matter to slip the coronoid process forward over the trochlea and complete the reduction. The joint is then carried through the full range of motion to ascertain that there is no obstruction. The periosteum and muscles are next closed along the posterior surface of the humerus, the fascia closed over the head of the radius and the tendon of the triceps muscle sutured back into its normal position. The arm is placed in a posterior splint with the elbow flexed at right angles.

"The arm is kept in a right angle posterior splint for from seven to ten days, depending upon the amount of operative reaction. Light massage and baking are then started and the splint removed several times a day for a gentle active and passive motion. By the end of the third week, the splint is discarded and exercise is of material benefit. When the dislocation has existed for a long period of time, there is considerable muscular atrophy, and the articular cartilages are roughened and atrophic, hence a long period after treatment is necessary to obtain the best possible function. Children, of course, respond more quickly than adults."

#### Case Report L. F. Age 16:

W. A. F., admitted to the Crippled Chil-

dren's Hospital July 5, 1930, complaining of inability to use right arm.

P. I. Eleven months ago patient was thrown from a wagon, lighting on the outstretched arm. Immediately following injury there was marked deformity in the elbow joint. She was taken to a doctor, who attempted to reduce the deformity and applied a splint which was left in place for six weeks. On removal of the splint it was noticed that there was persistent deformity. There has been but little improvement since this time save that pain has largely disappeared. Elbow cannot be flexed and the arm is practically useless.

P. X. General examination essentially negative to left arm. Left elbow shows marked deformity with pronounced posterior displacement of the olecranon, head of the radius is prominent, motion limited to from 135 to 160 degrees. Not painful. Lower end of humerus is palpable in the antecubital fossa. X-ray confirms the diagnosis of old dislocated elbow, also reveals fracture of both condyles with posterior displacement.

Operated, July 12, 1930, after the Speed technique. After careful dissection complete exposure of the elbow joint was made. Both condyles were found to be broken off and carried backward with the radius and ulna. Joint surface of the lower end of the humerus was intact, olecranon fossa filled with dense fibrous scar. Some over production of bone at the anterior aspect of the humerus. Reduction was easily accomplished after thorough dissection. There was no unusual post operative reaction or shock. There was no post operative swelling of the fingers and no evidence of paralysis. After ten days splint was removed and arm baked. A few days later passive motion through a few degrees was begun. This was continued with gradual increase in the range of motion. Active motion was encouraged and developed between the third and fourth weeks post operative. Motion has since been gradually increasing. The present range is from 70 to 110 degrees. Considerable limitation of supination has persisted. With the present range of motion the patient can reach mouth, top of head, back of head, neck, back, and has an extremely useful elbow, even should no further improvement in the range of motion result. Progressive improvement can be expected for as long as six to nine months post

operative. The rapidity of improvement bearing an inverse proportion to the time interval between the dislocation and the reduction.

Lantern slides of X-rays.

Demonstration of case.

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#### DALLAS SOUTHERN CLINICAL SOCIETY NEWS

Throughout the summer, the Executive Committee of the Dallas Southern Clinical Society has held weekly meetings perfecting plans for the society's Fourth Annual Spring Conference to be held in Dallas, March 28 to April 1, 1932, inclusive. Preparations are already far in advance of those for last year. This society, whose sole purpose is to make available to the doctors of the South the post-graduate teaching material of Dallas, has held three notably successful annual meetings which have occasioned much favorable comment. The attendance last year was just short of 1,200, and plans are being made to entertain at least 2,000 in 1932.

Twenty of this country's most distinguished medical teachers have accepted invitations to appear in General Assemblies, Hospital Clinics, and Round Table Luncheons. Ninety-six hours of post-graduate teaching have been arranged in courses in limited groups. Elaborate Scientific and Technical Exhibits, motion pictures and other attractive features are being planned. The Dallas Southern Clinical Society extends a cordial invitation to all of the doctors of the South and Southwest to be present March 28 to April 1, 1932.

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#### CHILDREN IN DROUGHT AREA

Children in drought area gain 4 to 16 pounds in 8-week clinical test—by drinking Cocomalt, the chocolate flavored food drink.

Some time ago we cooperated with health authorities\* in Arkansas in an unusual test. Cocomalt clinics were established in the drought areas and the children placed under the care of an attending physician and registered nurse. The children were given Cocomalt mixed with milk once a day. The average gain for forty days was 8½ pounds per child. One of the most outstanding features of this work was that in thirty children that were checked an increase in hemoglobin from 5 to 15 per cent was indicated.

The splendid results obtained with Cocomalt in Arkansas with only one feeding a day are further evidence of the high nutritive quality of this delicious food drink. Though it provides all the varied nourishment of a well-balanced meal, Cocomalt imposes no digestive burden. It is readily assimilated, quickly metabolized. It contains malt enzymes which actually help to digest the starches of other foods. Cocomalt meets ideally the demand for a high caloric, easily digested food.

More and more doctors are advising Cocomalt in cases of malnutrition; for expectant and nursing mothers; for convalescents and for hyper-nutrition in post-operative cases. Cocomalt is available at grocery stores everywhere in the ½ lb., the pound and the economical 5 lb., family size.

High as Cocomalt is in food value the cost is surprisingly low—it is within the means of practically every family.

\*The Cocomalt clinics were conducted, and reports rendered, by Dr. A. M. Gibbs, Hamburg, Arkansas, and other county health officers.

Dr. J. C. Miller, Desha County Health Officer, (Desha County, Ark.) writes as follows: "We used Cocomalt with milk and had very satisfactory gains and I believe Cocomalt to be very valuable as a flesh producer."

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#### WHITE HOUSE CONFERENCE MEMBER RATES BREAST MILK BEST FOR INFANTS

"The nearer the milk administered to the artificially fed infant approaches human breast milk in composition and sterility, the nearer the artificially fed infant approaches in its general resistance and condition that of normal nurslings."

This statement written by a member of the White House Conference presents accurately the idea back of S.M.A., an infant food developed at the Babies and Children's Hospital of Cleveland, Ohio. S.M.A. is regarded by many physicians to be the closest approximation to mothers' milk in existence.

It resembles breast milk, having the same percentage composition and in addition, the same buffer value, depression of freezing point, specific gravity, hydrogen ion concentration and caloric value. It is also interesting to note that the fat in S.M.A. has the same character numbers as breast milk fat, such as Polenske, Iodine, Reichert Meissel, Saponification, Melting Point and Refractive Index. Sufficient cod liver oil is incorporated in this fat to make it anti-rachitic.

Like breast milk, S.M.A. is used without modification for the normal, full term infant with excellent results in most cases.

The tuberculin tested cow's milk used as a basis for the production of S.M.A. is under the strict supervision of both Cleveland and Chicago Boards of Health.

#### Special Food for Premature Infants

For premature infants, and to correct diarrhea and malnutrition, Protein S.M.A. (Acidulated) is recommended. This is a special form of S.M.A. high in protein and low in fat and carbohydrate, with a relatively high acidity. The same anti-rachitic fat is present supplying vitamin "D", and it contains enough lemon juice to make it anti-scorbutic as well.

#### Develops Non-Allergic Milk.

For infants, children and adults sensitive to milk protein, the S.M.A. Corporation has produced a non-allergic cow's milk, (SMACO 300). Excellent results have been reported.

#### VITAMINS A AND D AT THEIR BEST

For vitamin A therapy, Mead's Standardized Cod Liver Oil continues to be 4 to 11 times as economical as cod liver oil concentrates. For vitamin D therapy, the new reduced price of Mead's Viosterol when prescribed in the original 50 c.c. bottle, makes it less expensive to the patient than Mead's Standardized Cod Liver Oil or any cod liver oil concentrate. Samples on request of Mead Johnson & Co., Evansville, Ind., U. S. A.

# THE JOURNAL

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DR. CLAUDE A. THOMPSON ..... Editor-in-Chief  
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT ..... Associate Editor  
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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

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### EDITORIAL

#### COOPERATION IN SMALL TOWNS

For many years the tendency has been toward grouping of physicians interested in various phases of medical and surgical work into clinics, or organizations. This has been especially true in medium sized cities, where hospitals have either not afforded or been in position to afford the diverse needs of a physician engaged in various types of work. In the larger cities the hospitals are thoroughly equipped with everything the physician may deem he needs to arrive at a diagnosis of his case. But this is not true, as a rule, in the smaller localities and in sparsely settled coun-

ties.

It has long occurred to the writer that the only obstacle to improving and getting rid of this impossible situation is for the physicians in any given small locality to get together and formulate a plan by which they may have, at least, most of the smaller necessities incident to quick and correct diagnosis. Many physicians in such isolated localities are remarkably accurate in making clinical diagnosis, and in carrying out indicated treatment. But often the demands are so multifarious that even a good physician has not the time to carry out the necessary technique. It would seem to be a relatively simple matter, and certainly one of no great cost, for the physicians in any small town to provide themselves with an adequate laboratory, in charge of a competent technician, wherein they may secure quick reports as to urinalysis, blood counts, basal metabolic readings, and various bacteriological reports.

Every physician being without the modern necessities of diagnosis will sooner or later fall by the wayside, get into a rut, and fail to render the high type of service modern knowledge demands that he should render his patients.

The facts should be faced squarely and in a judicial manner. There is no question but what the great obstacle lies in petty jealousies and dislikes. This probably prevails throughout the profession. The smart man evidences his shrewdness and high ability by never permitting this to come to the fore and therefore interfering with his work. Every small medical society or small group of physicians in Oklahoma towns should seriously consider the possibilities of improving their personal situation with reference to the diagnostic phases of their work.

Unquestionably their work will become more interesting to the individual and of greater value to the patient if some such plan should be in operation.

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### MEDICAL PRACTICE LAGGING

We have a medical situation in which the average physician invests heavily and works hard for a modest return; in which the average patient is menaced by medical charges which may ruin him or force him to resort to public charity, and in which

the actual practice of curative and preventive medicine is far behind our accumulated scientific knowledge.

Malaria bobs up with its million cases every year; it can be prevented. In a single year more than 80,000 persons die of tuberculosis and several times as many are ill with it; most of these cases could have been prevented.

We have each year between 30,000 and 100,000 cases of smallpox, we have had 26,000 cases and 5,700 deaths from typhoid fever, 89,000 cases and 8,300 deaths from diphtheria in a single recent year: this illness and these deaths were absolutely unnecessary. Our death rate in child-birth is one of the worst in the world; by the same token we could save the lives of thousands of mothers each year.

Medicine costs too much, its rewards to those who follow it are to small, and it does not achieve all that it ought to. No wonder it has occurred to many observers who are neither revolutionaries nor alarmists that it is time something was done to remedy this situation.

The proposed remedies are numerous. Some of them are good and some of them are bad, and it is not always easy to tell which is which. But I think few informed persons, lay or medical, will question the statement that the existing difficulties are due largely to defective organization or to a lack of organization in medical care. The hopeful element in this crisis is that certain tendencies toward a better organization are already showing themselves.—*R. L. Duffus in Harper's Magazine.*

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## FROM THE WOMAN'S AUXILIARY

### THE PRESIDENT'S MESSAGE

The reports of the chairmen of the various national committees and of the state presidents indicate unmistakably to the Auxiliary women everywhere that as doctors' wives we have a definite sphere of influence as members of lay women's organizations. As such we may form a strong bond between the medical profession and the lay public.

Because of this possibility we shall make every effort this year to strengthen our organization both in numbers and in quality of work done.

The greatest demand made upon us is for the right kind of source material for

health programs, and for health program speakers.

We are attempting to supply this information through a selected packet of literature, assembled by the Bureau of Public Information of the American Medical Association; by leaflets on communicable diseases compiled from the best recent medical literature and approved by a member of our advisory committee appointed for that purpose; by the dissemination of leaflets on "Some Contributions of Modern Medicine to the World"; by announcement of the American Medical Association radio broadcasts; and by using our best energies to promote the circulation of Hygeia.

We ask that every doctor's wife read the recommendations concerning Hygeia made to the Woman's Auxiliary by the House of Delegates of the American Medical Association. It is found on page 2116 of the June 20 issue of the Journal of the American Medical Association. Please see that your state and county medical societies also take notice of this recommendation of the House of Delegates.

Many Auxiliaries are doing outstanding constructive philanthropic work such as contributing to a medical benevolence fund, assisting in hospital auxiliary work and establishing medical student loan funds.

We believe that one of the best services we can render to the medical profession is to make our state and national conventions so attractive that great numbers of our women will be enticed to attend and will influence their husbands to come.

The recent meeting in Philadelphia showed that a convention can serve such a purpose. To this end we are already planning to make the convention in New Orleans the best yet if possible and we herewith invite all the doctors' wives to come and bring their husbands.

I hope your press and publicity chairman will let me talk with you again. Always read her reports and those in the bulletin of the American Medical Association. In the bulletin are two pages edited this year, as last, by Mrs. Walter Jackson Freeman, our national president-elect. I commend those pages and these to you and ask your support to make our departments co-operative, useful and successful.

### **Editorial Notes--Personal and General**

DR. J. HUTCHINGS WHITE, Muskogee, has returned from a vacation spent in Wisconsin.

DR. O. E. TEMPLIN, Alva, after summering in the Rockies, returned home in August just in time to contact the surgeon for a gall-bladder operation; after spending about four weeks in the hospital he is again becoming his old great self; that is, he is not as "bilious" as he was.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION met at the Central Oklahoma State Hospital, Norman, September 8, 1931, with the following program:

#### **Morning, 10:00 A. M.**

Group Clinics as follows:

Platoon 1. Functional Psychoses; Dementia praecox, manic depressive, involution melancholia, paranoid conditions.

Platoon 2. Organic Psychoses; Neurosyphilis, encephalitis, chorea, paralysis agitans.

Platoon 3. Convulsive States: Epilepsy, cerebral arteriosclerosis, hysteria, neurosyphilis.

Platoon 4. Exogenous Toxins. Alcoholic, Morphine, barbital group and others.

#### **Noon, 12:00**

Cafeteria Luncheon at Veterans' Dining Room. Ladies invited.

Address—Hon. Ben F. Williams, Norman.

Acquired Arterio-venous Communication and Treatment. Dr. Leroy Long, Dean University of Oklahoma School of Medicine, Oklahoma City.

#### **Afternoon, 1:30**

Scientific Program on Ward Q.

1. Cancer of the Breast—Dr. R. M. Howard, Oklahoma City.

2. The Spinal Cord—Dr. T. D. Rowland, Shawnee.

3. Report of a Case—Dr. D. G. Willard, Norman.

4. An Appraisal of the More Recent Methods of Treatment in Advanced Pulmonary Tuberculosis—Dr. L. J. Moorman, Oklahoma City. Discussion by Dr. Horace Reed, Oklahoma City.

5. Psychoses With Other Somatic Diseases—Dr. T. M. Boyd, Norman.

6. Clinical Types of Nephritis (pictures)—Dr. Basil Hayes, Oklahoma City.

7. Infection of the Hand (Extension Picture)—Dr. W. T. Mayfield, Norman.

8. Cardiac Pathology (Extension Picture)—Dr. Ben H. Cooley, Norman.

Dr. J. W. Nieweg, reports a very successful meeting.

### **UROLOGY and SYPHILOLOGY**

Edited by Rex Boland, B.S., M.D.  
1010 Medical Arts Building, Oklahoma City

#### **Renal Function**

Giordanengo and Colombet studied thirty patients (mostly with hypertrophy of the prostate) with regard to renal function, phenolsulphonphthalein and its interrelation with cholesterol and uric acid in the blood. They state that the increase in the elimination of cholesterol is parallel with diminution in that of phenolsulphonphthalein. The authors' conclusions are as follows: 1. The amount of cholesterol may be used as an approximate index of the elimination of phenolsulphonphthalein, taking into consideration, of course, the age of the person. 2. Cholesterolemia being an evidence of the liver function, the elimination of phenolsulphonphthalein depends not only on the renal function but also on that of the liver. 3. Therefore in the presence of a poor elimination of phenolsulphonphthalein one should determine the cholesterol content of the blood. One can in this manner determine the preponderating part of the liver or kidney in this deficiency of elimination. 4. No information can be obtained from a determination of the uric acid content of the blood.

#### **Functional Megabladder**

Diamantis reports a case of functional megabladder in a child, aged 3. The distention was caused by an obstruction of the prostatic urethra by a small stone that was extracted by the author. The boy made an uneventful recovery. The author's conclusions are as follows: Megabladder is characterized, independently of its origin (congenital or functional), not so much by the overdistention, which may be observed also in prostatic obstruction, but especially and particularly by the lack of contractility of the bladder wall; because of this the distention progresses until it is stopped by external obstacles as the bony wall of the pelvis. This is the reason why in a bladder with a retention of a liter or more and in emaciated persons one observes a bulging of the hypogastric region but cannot delimit the bladder.

#### **Pathogenesis Of Urinary Gravel**

Schneider and Codounis observed fifty-two patients with various disorders. The logic examination of the urine and its sediment. *Bacterium coli-communis* was identified in a pure state twenty-eight times and associated with other bacteria nine times. Among these thirty-seven cases calcium exalate was found twenty-five times, a proportion of 76.55 per cent. *Enterococci* were identified in a pure state nine times and associated with other bacteria nine times. Among these eighteen cases free uric acid or sodium urate was found twelve times, a proportion of 66.66 per cent. In nine cases crystallization was not demonstrated. In one case bacteria were not found. The actual percentage, after deducting the cases of urines without crystals, was 86.20 per cent of cases in which calcium oxalate was coincident with *B. coli-communis* and 75 per cent of the cases in which uric acid was coincident with *enterococcus*. The author's conclusions are as follows: *B. coli-communis* seems to require the presence of calcium oxalate and a

neutral or even definitely alkaline medium, whereas the enterococcus, which is more common in infected urine than is commonly supposed, seems to prefer a more acid medium with a predominance of crystals of sodium acid urate or of crystals of free uric acid. The staphylococcus occurs rarely in the urine; it is encountered mostly in alkaline urine with a predominance of amorphous phosphates or of crystals of ammoniummagnesium phosphate. The author states that because of inadequate figures they prefer not to draw any definite conclusions concerning urinary lithiasis. It is not well established yet that the latter is always of a bacterial nature. The authors believe that the bacteria themselves are not capable of producing crystals; however, they form some sort of intermediary link in the chain. The authors consider the probability of some ferment, which might be produced by the leukocytes. One of them experimented with purely aseptic urine, free from bacteria and leukocytes, which was inoculated with cultures of different micro-organisms. The crystallization did not occur even after four days. The same was true in experiments performed with sterile urine inoculated with several cultures, to which blood was added to supply the leukocytic element. They call the attention of biologists and especially of clinicians to the fact that in many instances the diagnosis and treatment of urinary gravel will be facilitated if one will determine the kind of bacteria in the urine.

#### Malignant Tumors of the Bladder

Lewis and Carroll describe (Archives of Physical Therapy, X-ray, Radium, April, 1931,) several cases of bladder carcinoma which they have treated with diathermy.

They state that infiltrating carcinoma of the bladder is best treated by suprapubic exposure and direct application of diathermy. An electrode ranging from the size of a dime to a five cent piece is applied in one area for at least ten minutes and shifted until the entire mass and its closely adjacent tissue are treated. The strength of the current is determined in the heat generated in the tissue. It should be as hot as the gloved finger in the vagina or rectum can endure.

They cite cases which have remained clinically well for from three to five years.

#### Torsion of the Testicle

Blanc describes (Bordeaux Chirurgical, April, 1931,) a case of torsion of the testicle occurring in a boy fifteen years of age.

The trouble began while the patient was in the classroom at school. Entirely spontaneous pain-suddenly occurred in the left testicle. He noticed that the scrotum was red and swollen. He went home and went to bed, but he was able to return to school the following day. Again he had to go home and the physician called treated the condition as a simple inflammation. It was therefore fifteen days before he finally came to operation.

Examination on entering the hospital showed no evidence of infection either in the urinary tract or elsewhere. At operation the testicle was found twisted two full turns upon its pedicle. It was also upside down. The testicle was un-twisted and replaced and the patient made a good recovery.

#### The Electro-Surgical Scalpel in Renal Surgery

Scott states (New York State Journal of Medicine, April 1, 1931,) that the electric scalpel in operative procedures on the renal parenchyma, greatly decreases the amount of hemorrhage.

This fact renders it possible to get along with fewer sutures and there is thus less impairment of renal function. Also decreased hemorrhage permits quicker and better operative work.

He describes a number of cases including a resection of the lower pole of the kidney, in which he has operated with his knife and has been greatly impressed with its advantages.

#### Torsion of the Kidney

Westerborn describes (Acta Chirurgica, January, 1931,) a case of unusual torsion of the kidney resulting in an abnormal course of the renal vessels, so that the kidney was constricted by them at its middle.

The kidney had undergone a rotation amounting to three-fourths of a full turn and the kidney vessels had been pulled around with it so that they made very nearly a complete loop around the kidney before entering it at the hulus. The result was a constriction as if a ring had been thrown about the middle of the kidney. The patient gave a history of occasional abdominal pains extending over a number of years and entered with a dull boring pain in the region of the right kidney.

The true nature of the condition was revealed by a pyelogram which showed the right kidney displaced downward and with its calices pointing to the median line. This kidney could be felt and its lobular character was determined before operation.

The kidney was freed at operation and the vessels carefully dissected loose. The kidney was now rotated through an angle of 270 degrees. This resulted in a twisting of the ureter, but this latter condition was relieved by simply loosening the ureter from its surroundings throughout its upper half. The kidney was fixed in its normal position by a suture thrown over the eleventh rib. The patient was discharged without symptoms at the end of four weeks.

## Lac-Bismo (HART)

See Description, Journal A. M. A.  
Volume XLVII, Page 1488.

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NOTE—Corrections and additions to the above list will be cheerfully accepted.

INDEXED R.L.W.

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# THE JOURNAL

OF THE

## OKLAHOMA STATE MEDICAL ASSOCIATION

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### PSYCHOSES WITH OTHER SOMATIC DISEASES\*

THOMAS M. BOYD, M.D.  
Central Oklahoma State Hospital  
NORMAN

I have not chosen the subject of "Psychoses with Other Somatic Diseases," because of any special knowledge we men here at the hospital might have on the subject, but principally because I thought it would be of general interest to all of you.

Within this group are included the psychotic states which attend the infections, constitutional disorders, states of exhaustion, and diseases of the endocrine glands. The more prominent psychotic states may be classified as follows:

1. Delirium with infectious diseases.
2. Post infectious psychosis.
3. Exhaustion delirium.
4. Delirium of unknown origin.
5. Cardio-Renal disease.
6. Diseases of the ductless glands.

Other conditions, diabetes, gastro-intestinal disorders, malaria, rheumatic fever, pregnancy parturition, puerperium and lactation.

Development of these psychotic states depend very largely upon the resistance of the patient, degree of temperature in the infectious diseases, and the virulence of the organism. Naturally, lack of resistance on the part of the nervous system is the most important factor. Some individuals, as you all know, can handle a temperature of 104° or 105°F, and not manifest any mental symptoms whatever, while another might develop confusion and delirium with comparatively little temperature.

The symptoms in delirium with infectious diseases may develop before there is any marked rise in temperature, during the febrile period or after the temperature has subsided. The condition is characterized by headache, malaise, confusion, delirium, transient hallucinations, and changeable delusions of a disagreeable

nature. There may also be states of depression and excitement. The severity of these symptoms vary more or less according to the temperature curve, from mild manifestation, to marked clouding of consciousness, disorientation, hallucinations and delusions. These patients often carry on conversation with imaginary individuals, toss about on their bed, and they become destructive and unmanageable. Their speech is often incoherent and they manifest many purposeless movements. The majority of the above symptoms may come on after the infection has subsided, then the condition is usually classified as post infectious psychosis.

Another serious condition which we frequently come in contact with is exhaustion delirium. This psychotic state may follow severe exhaustion which attends loss of blood, mental and physical shock, puerperal state, continued loss of sleep, or prolonged convalescence from the infectious diseases as typhoid, pneumonia, influenza and tuberculosis. In this condition we have two forms, (1) collapse delirium, and (2) acute hallucinatory confusion.

Collapse delirium usually follows a period of prodromal anxiety, insomnia and restlessness. The patient gradually becomes clouded, confused, and disoriented in all spheres, hallucinatory and delusional. There is great psychomotor activity, the patient being very restless and over-active, and may become destructive. In the more severe cases, disorientation may be complete, and the patient may become stuporous. There is usually loss of appetite and there may be gastrointestinal disorders.

In the acute hallucinatory delirium the symptoms are not nearly so severe, but are quite similar to those of collapse delirium. The patient talks in an incoherent and irrelevant manner; has changing hallucinations and delusions, but occasionally there are periods in which the patient's consciousness is apparently clear, and he talks and behaves in a rational manner. These rational periods may lead to an

\*Read before Southern Oklahoma Medical Association, Norman, Oklahoma, September 8, 1931.

erroneous diagnosis, and give rise to unfounded hopes for an early recovery.

We must bear in mind that there are other types of psychosis that may develop in a similar manner, particularly dementia praecox psychosis, which very frequently follows childbirth. We often speak of "puerperal insanity," but the majority of these cases I believe, eventually terminate as dementia praecox cases. We have a number of women in the hospital who came in a few years ago with all the symptoms of so-called puerperal insanity, but they turned out to be dementia praecox cases.

No doubt all of you men have had a number of cases that would fit in the group of symptoms given above. You know how anxious the patient's relatives are, and how dependent they are upon the advice and comfort the family physician is able to give them. When the question of taking a patient to a state hospital arises, there is, I imagine, usually an objection on the part of the relatives. Some people make the statement that they had rather bury their loved ones than see them go into an "insane asylum," as some people ignorantly speak of state hospitals. There should be no disgrace, nor is there any, in being sent to a state hospital, so far as the informed are concerned. Nevertheless, there are some people who unjustly, of course, consider it an everlasting disgrace if one of their relatives has to be committed to a state hospital.

Management of the more severe types of these cases is quite difficult, to say the least. It consists first, in determining, if possible, by a complete physical, mental, neurological and laboratory examination, the cause of the condition. One thing that is very necessary in the management of these cases is keeping up the body strength. In numerous instances it is a problem to get the patient to take sufficient nourishment. If we can maintain his physical strength until he becomes quiet and begins to clear up mentally, they frequently recover. We care not how big and strong a patient is if he will eat, but when they refuse to take nourishment, the case is much harder to manage. Occasionally they positively refuse nourishment of any sort, fearing that they are being poisoned, or because they are so badly clouded and confused that they will not cooperate in any way. In cases of this type we must resort to "forced feeding." In nasal feedings we use milk and eggs, prepared as

"egg nog," or any sort of liquid nourishment desired. We sometimes give 12% glucose in normal saline solution intravenously, in quantities ranging from 250 cc to 1000 cc daily. We also rely on proctoclysis of 12% glucose, and 2 to 4% soda bicarb, or hyperdermoclysis of normal saline.

Another important factor, which is often quite difficult, is securing proper amount of sleep and rest. This is best obtained by the use of hydrotherapy or continuous baths. A patient who is very noisy, restless, overactive and destructive, is greatly benefited by a continuous bath of from two to eight hours, or longer, if necessary. The patient should be wrapped in a blanket, placed in the bath tub, and made as comfortable as possible. A bath thermometer should be used and some one should be in constant attendance to see that the temperature of the water does not get above 98° or below 95°F. After a good continuous bath, the patient will frequently go to sleep without the aid of a sedative drug. Great care should be exercised to see that the patient is not chilled while being removed from the bath to the bed. After a bath the patient should be kept in bed, some form of light restraint to be used, if necessary. Many times we have to resort to sedative drugs following baths in order to induce sleep,

Medicinal treatment consists in giving whatever drugs are necessary to keep the patient in the best physical condition possible. The drugs we use mostly to aid in producing sleep are the bromides, barbital and luminal, but they are used only when needed. If the patient refuses to take medicine by mouth, which they sometimes do, we most always use hyoscine hydrobromide in doses ranging from 1-200 to 1-75 gr. The initial dose is usually small in order to determine if the patient has an idiosyncrasy to the drug. We have found it very satisfactory in most of our cases. It does not seem to have any particular effect on peristalsis and we do not think it is habit forming, altho it is used judiciously. Occasionally we combine it with morphine, but one must be sure that neither drug produces excitement or the desired results are not obtained.

The symptoms given above are usually associated with the more severe psychotic states. On the other hand, however, we frequently find mental trends varying from a mild degree of suspicion to a very pronounced paranoid trend or condition.

## OUR RESPONSIBILITY TO THE NERVOUS PATIENT\*

M. S. GREGORY, M.D.  
OKLAHOMA CITY

As an introduction to this subject, I wish to review the history of the care of the mentally ill for the past three thousand years. Beginning nearly 1000 B. C., we find that the mentally ill are already considered as sick people; that they are carried to the temples that they may hear music; and that various things are done for them which were quite similar to the things which are done today. Then, if we move along down the ages to the time of the great Father of Medicine, Hippocrates, we find that he, in all of the goodness of his wonderful heart, had already treated the mentally ill like human beings; his sympathies had gone out to them and he had put them into hospitals and had done all possible for them considering the times. A few years later we arrive at Egypt where, in 300 B. C., Egypt is maintaining hospitals for the mentally ill. These hospitals gave a prophecy of what we have today. In these hospitals there were no punishments; there were no whippings; the mentally ill was not held responsible for his illness, but rather was treated very similar to the way we treat insane patients of today.

Then, as we come down to the beginning of the present era, a very unusual psychological reaction occurs in that the demonology of the past was brought forward and was used in the explanation of the mentally ill; that is, at the beginning of the present era a new explanation of the mentally ill began to be formulated, and that is that the mentally ill were possessed of demons. This explanation rapidly developed and rapidly spread so that by 325 A. D., the hospitals in which mental patients were received had completely disappeared. The mental patient was held responsible for his illness; he was held responsible for the demons which possessed him, or rather, which he possessed—it being believed that he reached out into space and deliberately selected the demons and put into himself. And, therefore, he was responsible for his illness. This horrible interpretation continued on down through the ages until the beginning of the nine-

teenth century. During these fifteen hundred years the mentally ill were treated as though they themselves were demons. They were whipped; they were scourged; they were tortured; they were put into dungeons and starved, while all manners of cruelty were heaped upon them.

This continued until about 1820, when Dorothea Dix, a little frail school teacher of Massachusetts, became interested in the question as to how the mentally ill were being treated in her State. She visited the alms houses of the counties of the commonwealth of Massachusetts and was horrified at the cruelties which she discovered. She went before the Assembly of Massachusetts and made an unofficial report, accompanied by an impassioned plea that the condition be changed. The Assembly appointed a committee which repeated her investigations, and from that came a great revolution in the care of the mentally ill, not only in Massachusetts and the United States, but in the whole civilized world.

However, prior to 1820, two great names stand out as already paving the way for a reformation. One was Pineal in France and the other, Benjamin Rush of Philadelphia. These two great men were doing all in their power to give the mentally ill that came under their care, proper treatment.

At the present time, the psychiatrists of the world are not holding the insane patient responsible for being insane, but are seeing in their sickness that they are perfectly helpless to control themselves. There are two hypotheses which are largely used today by the psychologists and psychiatrists to explain this condition of being helpless in the hands of the neuroses. The psychologists of America are almost universally teaching in the high schools and colleges the hypothesis of the conditioned reflex. In this hypothesis, action and reaction, stimulus and effect, are established by paths of association; and when once established, continues to travel those same paths and continue to control our conduct indefinitely; this whole reaction being below the threshold of consciousness.

The other hypothesis, which is used more especially by the psychiatrist, is the hypothesis of the unconscious mind. This unconscious mind is very similar to the conditioned reflex, but, in addition, there is forced into it fears and hates, the origin

\*Read before the Medical Section of The Oklahoma State Medical Association Annual Meeting, Oklahoma City, May 13, 1931.

of which becomes unknown to the individual; that is, he forgets the unpleasant, fearful incidents, but the fear still lives. He forces himself to forget the unhappy early childhood experiences of life, which experiences produce resistance and hate in the individual. The memory of the incident is lost but the hate lives indefinitely. And then, when the unconscious becomes too great, it takes possession of the individual and runs them according to the fear and hate which is living in the unconscious, the patient being entirely helpless in the hands of these unknown emotions.

The incidence of the neuroses, taken in the broad sense of the term, is perfectly appalling. New York State tells us that, according to their experience, between four and five out of every hundred individuals will sometime or another live in a mental hospital. These are the cases that become frankly insane. These statistics do not include the large numbers of the mentally ill who are confined in jails and prisons and these statistics do not include the large number of border-line cases which are living more or less uncomfortably in their environment.

At this time a short statement relative to the present attitude toward heredity and environment is made. The older psychiatrists and many of the organic neurologists of today believe firmly that the whole of human conduct is a question of inheritance through the germ cells. That conception has been held for hundreds of years. There is the great school of psychologists, and quite a school of psychiatrists, who believe that environment is the greatest factor in determining human health or happiness. It is our opinion that both inheritance and environment taken together are very important. The unprejudiced man of today will not attempt to draw the line between the effect of inheritance and environment.

As stated above, children are conditioned to fear. Of course, a certain amount of fear is normal; a certain amount of fear is necessary for self protection. Some children are taught to be afraid of storms and some parents every time that a storm arises go into a panic of fear, grab their children, and run for a storm cellar, no matter how mild or severe the storm may be. Again, other parents pick out practically everything in the environment and pile fear upon it in the presence of the

child. One of the great fears which is developed is fear of the dark; many a parent teaches the child to be afraid of the dark, telling the child that the "dark will get them"; and this constant conditioning of the child to be afraid of everything in his environment is continued until adulthood, when this fear is brought forward the patient finds himself in the hands of a severe anxiety neurosis.

Again, many a parent crushes the child and develops in the child not only the fear of the parent, but a hate of the parent which becomes more or less unconscious. Some parents are cruel, dominating, crushing to the extent that all initiative is taken out of the child. They are crushed so that they attempt to love those for whom hate is developed. This hate may become entirely unconscious; however, some of it may fortunately remain conscious. Some children are literally trained by one parent to hate the other; some children are literally trained to hate everybody and everything in their environment. Such training may not manifest itself until early adulthood or late life is reached and then may manifest itself by a horrible "precox resistance," all of these emotions being integrated and built into the hypothetical thing which we call the "unconscious."

Because of the complete domination of the personality by this hypothetical thing which we call the "unconscious," we can be most unfair to our patients by attempting to advise them. The nervous individual is always seeking advice, and right here is where we can do a vast amount of damage. Were I to advise a nervous patient, I would have to be very careful or my advice would be conditioned upon my own unconscious wishes. Many years ago I heard Professor W. A. White of St. Elizabeth's Hospital at Washington make the statement that "the individual did that which was most beneficial to him"; meaning that the unconscious mind compelled the individual to do that which was least damaging to the individual. It took me a long time to fully comprehend the meaning and the significance of that statement; and I am now coming to believe that Dr. White is right. In advising our patients, we must be very careful and never advise them to go against their early moral training. Many a man and many a woman has been thrown into a severe psychosis because of attempting to carry out such advice. One can *explain*, but I wish to say

that it is a very dangerous thing to attempt to advise the mentally ill.

I wish to make a plea that every nervous individual and that every patient who comes into our office be thoroughly examined neurologically. Very frequently we have been unfair to our patients, diagnosing them as hysterical when in reality they were the victims of organic disease. Many a beginning of the cerebro-spinal syphilis in its early stage has been overlooked and the patient told that there is nothing wrong, but to go home and forget it. So I beg of you at this time to make a thorough neurological examination, and having made the examination, if we can rule out organic disease, then explain to the patient how glad we are; but when we make the diagnosis of a neurosis carefully explain to the patient that he is in the hands of this neurosis which comes up out of the unknown that we call the "unconscious mind." Explain to him that he is ill; tell him that you know that he does suffer and suffer horribly; let him know that you do understand his illness because when a seriously ill individual finds one who really understands him, he is on the road to improvement. Sometimes families have scolded and ridiculed and have crushed and hurt the manic-depressive while in a low phase; and please remember that the manic-depressive in a low phase suffers much worse than with any half-dozen organic diseases put together. Their suffering can not be compared with any other type of disease.

In conclusion, let me make a plea for a deeper understanding of the neurotic patient. No matter whether they become so through organic inheritance of the germ cell or whether they become so through the horrible treatment and training which they received during the formative periods of their lives, they are sick individuals. They are either in the hands of their inheritance *per se* or they are in the hands of the hypothetical thing which we call a conditioned reflex or the unconscious mind.

Remember this: That every individual does the best that he or she can do with the tools with which they are working. Every man and every woman does the best in their human conduct which their abnormal mind allows them. Again, let's be fair and let's be humane.

**DISCUSSION: Dr. G. W. Griffin, Norman:**

I am surely glad to see these things brought to the attention of the medical men. It has been sadly neglected. There is going to be more said about the nervous and mental disorders in medicine than any other department of medicine in the last half decade. The time is coming when the hospitals are going to have to take care of these cases. At least a few of the cases should be taken care of by the hospitals. Many of these cases are successfully being treated in the home. These patients are sick. Of all the sick cases, none are quite so sick as the mental case. You want to be able to understand the cases and take care of them in your own hospital. There should be more mental hospitals in the State. There is a considerable number of cases that should not come to the hospital, they should be taken care of at home.

People are afraid of mental cases. They believe the patient will kill some one. Mentally sick people do not commit homicide but sometimes do commit suicide. These people should be taken care of and gotten well, for they do get well. If not permanently cured, well enough to be taken home. I would like to see the general medicine man take this thing up for it is a vital part of medicine.

**DISCUSSION: Dr. E. Goldfain, Oklahoma City:**

If we will just stop to think for a minute of nervous cases, whether psychosis, hysteria, etc., and especially the functional and like types of nervous disturbances, how severely ill they are and that they are really trying to readjust themselves, we should not be above treating them honestly and with understanding. If the doctor will only realize that the nervous person should be looked upon as normal and try to help him readjust himself, the history in respect to nervous diseases will be entirely different.

A father-in-law brought his son-in-law to me. I did not know anything about mental cases and suspected that he should be confined to an institution. I told the father-in-law he should be hospitalized. The father-in-law insisted the boy was not crazy. In six weeks a horrible thing happened—the boy had killed his wife and baby and he was brought to the county jail. The father-in-law wanted him electrocuted or he would kill the doctors.

## THE INDUSTRIAL ASPECT OF ANTERIOR POLIOMYELITIS\*

D. H. O'DONOGHUE, M.D.  
University of Oklahoma  
OKLAHOMA CITY

In the course of any epidemic of so-called infantile paralysis there has been a greater or lesser percentage of adult cases reported. This has been true of our recent epidemic; and, considering the high percentage of disability which so often follows this disease, it is readily understandable that in many instances there may seem to be some connection between the occupation of the individual and his residual paralysis. In this day of industrial insurance and compensation there must be many instances in which there is an attempt made to collect disability benefits where an accurate and clear diagnosis on the part of the examining physician is of the greatest importance. Although the patient himself may be perfectly sincere in his belief that the disability is a result of injury it is the function of the examiner to be able to reach some definite conclusion as to the place of trauma as an etiological factor.

The cases to be reported here are in no sense unique. They merely serve to illustrate in a particularly lucid manner the possible industrial aspect of anterior poliomyelitis.

### CASE REPORTS

**Case No. 1.** O. L., W.A.M. Age 24. Admitted to hospital July 2, 1930, complaining of paralysis of legs. Patient states that he was perfectly well until five days ago when he noticed soreness in his back. He was able to work the next day but that night the pain in his back was more severe and he went to a doctor telling him that he believed that he had strained his back. The doctor taped his back for strain but this seemed to make the pain worse so the patient removed the tape that night. Pain in back increased with development of stiff neck. On the morning of the third day he noticed that his legs were weak and that he would fall when endeavoring to stand. By evening he could not walk. He states that the next day he was paralyzed from the waist down. He had some nausea and had vomited on the second day. He had a severe headache. Admitted to the hos-

pital on the sixth day at which time physical examination revealed considerable stiffness of the neck apparently due to muscle spasm with tenderness throughout the entire length of the spine with muscle spasm most marked in the cervical and lumbar regions. On casual examination it appears that the right lower extremity is entirely paralyzed. Careful check of the muscle groups reveals that there is a complete paralysis of the gluteus medius, quadriceps, anterior tibial, posterior tibial and peronei. The rest of the muscles show such weakness that the extremity cannot be moved voluntarily. General weakness is much less marked on the left side and the extremity can be moved by the patient. There is, however, a complete paralysis of the anterior tibial, posterior tibial, and peronei muscles. Both legs show extreme tenderness of the muscles but otherwise sensations are intact throughout. Deep reflexes absent. Temperature 102. Pulse 110. Respiration 24. Blood and urine negative. Lumbar puncture shows plus globulin, 95 cells, mostly small lymphocytes. Blood Wassermann negative.

Diagnosis of acute anterior poliomyelitis was made and casts applied to put the extremities at rest. After tenderness had disappeared, light massage was instituted followed by routine physio-therapeutic measures. Considerable improvement has resulted but there is still a considerable degree of residual paralysis including the anterior and posterior tibial and peronei on the right and the anterior tibial on the left. There is marked weakness of the right quadriceps group.

**Case No. 2.** O. W., W.A.M. Age 28, states that on July 28, 1930, he was lifting pipe and strained his back. He was able to finish the day's work. He complained of some malaise that evening with pain in his back and some fever. The next morning the backache was worse. The muscles of the thighs and back were sore. He called a doctor who told him he had strained his back and who gave him some tablets which gave him slight relief from pain. He was able to walk about the next day and complained of dizziness and instability. The next morning he was unable to get out of bed and states that he had more fever, and that there was considerable stiffness of his back and neck. His legs seemed heavy, but he could move them about in the bed. On the third day

\*Read before the Oklahoma County Medical Society, November, 1930.

he could not move the right leg nor could he raise the left heel from the bed. He was examined by a doctor on the fourth day who reports that he had complete paralysis of the right lower extremity and paralysis of the dorsi-flexors of the left foot, and the left quadriceps. There was no loss of sensation but rather definite hyperesthesia over the lower extremities. There was definite stiffness of the neck with a tender spine. He was diagnosed anterior poliomyelitis and treatment instituted. Examination six months after injury reveals complete paralysis of the left anterior tibial muscle, with marked weakness of the posterior tibial and the peroneal group. There is a very decided weakness of the quadriceps and of the calf muscles on the right with complete paralysis of the anterior tibial, posterior tibial and peronei. The extensor longus hallucis is functional. Laboratory examination negative. X-ray of spine negative.

These cases present the characteristics of acute anterior poliomyelitis. Onset with malaise, pain in back, stiff neck, fever, with paralysis developing on the third or fourth days; continuing with fever, tenderness in muscles, sensations intact, no loss of bowels or bladder; characteristic lumbar puncture findings, all are definite symptoms of the disease; then the characteristic distribution of the motor loss, with gradual recovery from all symptoms except motor paralysis, and the diagnosis is clear.

The patient, however, presents his case to the Industrial Commission stating that he has injured his back and claiming compensation. Obviously during the course of an epidemic such a case is immediately recognized in its true light. Given a case occurring sporadically with a less characteristic chain of symptoms and some doubt might arise as to the correct diagnosis.

#### CONCLUSION

Extreme care must be taken not to blindly ascribe all symptoms which may be present to an injury which may be entirely coincidental or even imaginary. This is especially true in cases involving a supposed injury to the spine where in many cases no objective signs of injury can be found. Careful history, detailed physical examination, will in many cases demonstrate a perfectly definite clinical syndrome entirely independent of injury.

#### A CASE OF MECHANICAL EPILEPSY

G. WILSE ROBINSON, JR., M.D.  
KANSAS CITY

During the past year and a half, we have been interested in the epilepsies. Epilepsy is a symptom only, and is not a disease entity. There are many causes of convulsions, and in every case, we have two plans of treatment. First, we can treat the case symptomatically, by means of depressant drugs, which inhibit the convulsions. Second, we can treat the cause and, by eliminating the cause, stop the convulsions.

Throughout the history of medicine, the cause of the "falling sickness" has been unknown; many theories and suggestions have been offered, but none has stood the test of time. One of the latest was the ketogenic theory, which claims that the antiketogenic elements in the body are greatly in excess of the ketogenic, and because of this, the patient has periodic attacks. This theory lead to the ketogenic diet, which gave us the best results of any form of treatment, up to this time.

Fay, in 1929, propounded the mechanical theory of convulsions. His work and that of others—notably McQuarrie—has lead to the conclusions that the cause of the condition we have known of as idiopathic epilepsy, is intimately associated with water metabolism. From this work, we have devised the fluid-limitation treatment for this condition, with uniformly good results, when the patient gives us whole hearted cooperation.

We reported our results with this treatment, early in 1930, and we are taking the liberty of reporting one of those cases, in detail, with the results of an additional year's study on the case. This was case six in the original report.

H. B., age nine, first came under observation on September 4, 1929, at the Alfred Benjamin Dispensary, with a chief complaint of mental retardation, and nocturnal convulsions. The onset occurred when she was three years of age, and, unlike most cases, the peak in the number and the severity of attacks was reached almost at once. Up to that time, the child had been apparently normal, though these reports are often misleading. At the time we saw the patient, she was having from two to three convulsions every night, which

were typical of the epileptic seizure. As in nearly all of these cases, there were no objective findings except a change in the intelligence quotient, and atrophy of the brain, as shown by the encephalogram. The intelligence quotient in 1927 was 62.5%, while in 1929, it had dropped to 35%. This is a very pronounced drop, and shows the great amount of damage that may be done to the neglected case. The encephalogram shows the reason for this severe deterioration of her intelligence, as there has been a very severe cortical atrophy, involving both sides. The plates showed the most severe grade of atrophy of any case we have ever seen. We know that as time elapses in these cases, the disease progresses, and the destruction of the brain becomes more severe. For that reason, drastic steps should be taken as early as possible, to inhibit the progress of the condition. Procrastination may so injure the patient, that no help may be given, when the proper type of treatment is instituted.

She had been on luminal therapy for several months, with no results. Two weeks after she was seen, the patient entered the hospital for the encephalogram, and the early stages of the treatment. Ordinarily, the treatment may be carried out at home, but in this case, both parents have tuberculosis, so it was thought advisable to leave her at the hospital for three months, the length of time usually necessary to satisfactorily adjust the patient to the regimen. It usually takes from two to four months before results can be obtained with this therapeutic measure.

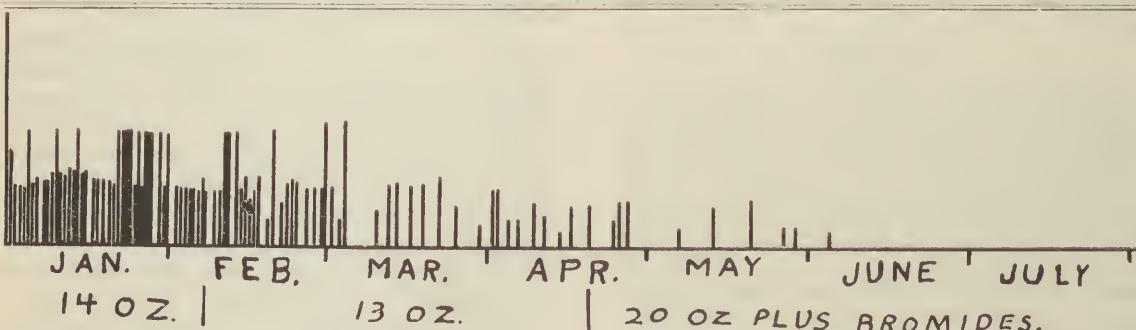
Her total fluids were cut to 14 ounces a day, and she was put upon a low water diet. Within a month, she became convulsion-free, and remained so for almost two months. At the end of that time, she returned home and almost at once, began

to have attacks again. This frequently occurs, as the change from hospital life, with its careful supervision, to home life, where mistakes can and will be made, nearly always causes a relapse. She was found to be constipated, and, unknowingly, she had committed dietary errors. These were corrected and slowly she began to respond, as shown by the chart.

An analysis of this chart shows several interesting things. First, it took five months before the patient became convolution-free, after the adjustment had been made. This shows that care should be taken in prophesying any length of time in which the patient will respond. Perseverance must be practiced, and, if a defeatist attitude is taken, nothing can be accomplished. Secondly, not only did the number of attacks become less, but the severity decreased, as shown by the decrease in the length of the lines. This is the usual sequence of events, and when the attacks begin to become less severe, it is evidence that the treatment is taking effect. Thirdly, about the middle of April, because of a suspicion of tuberculosis, it was thought advisable to add milk to the diet. Seven ounces of milk per day were given to her, and as this probably would increase the attacks, a bromide preparation was given to offset this mild increase in fluids. This apparently was satisfactory, as the attacks became less severe and more infrequent, and eventually disappeared.

She has not had an attack now since early in June. Many observers demand a five-year cure in epilepsy, and, while we do not claim she is cured, still, we feel we have accomplished a great deal in one of the most severe cases that ever came under our observation.

Of extreme importance, is the change in her intelligence quotient. When she first



Shows the reduction in both severity and number of attacks, after she left the hospital. Each line represents an attack, and the length of the lines represents the severity of the attack. The figures at the bottom represent the total fluid intake, in twenty-four hours.

entered school in 1927, her I. Q. was 62.5%, and in 1929, it was 35%, a very severe drop. Nine months later, under fluid-limitation treatment, the I. Q. had risen to 37.5%, and four months later, it was 38%. On the surface, we do not seem to have accomplished much, but a careful analysis of the above figures, will show that, not only has this severe deterioration been stopped, but that she is showing progress, almost compatible to normal children.

Her mental age thirteen months ago, was three years, and now it is three years, eight months. Considering the fact that in two years, she had lost one year and two months, I believe it is astounding that in one year, she should have gained eight months. Not only that, but the psychologist reports she believes the patient had gained a great deal more than is shown by the test.

To my mind, this is the great benefit to be obtained from fluid-limitation treatment. There is no doubt but that it is drastic, and that the patient suffers from thirst, but if we can save the mentality of our patients, then it is worth the effort. I do not believe medical treatment, even though it stops the attacks, will benefit the intelligence of the patient. This, I believe, is shown by this case.

I cannot fairly draw any conclusions from one case, but I believe the above results are added evidence that fluid limitation, wherever possible, should be used in the treatment of the mechanical or water type of epilepsy.

1432 Professional Building.

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#### CAROTINEMIA RESULTING FROM RESTRICTED DIET

Oscar L. Levin and Seymour H. Silvers, New York (Journal A. M. A., June 27, 1931), report two cases of carotinemia which occurred in women who did not have diabetes, the discoloration in one of them being more evident by continuing the ingestion and increasing the amount of carrots and oranges eaten. Aside from the pigmentation there are no other subjective or objective symptoms. It is possible that the condition may exist for variable periods of time before it may be perceived and made a complaint. Its differential diagnosis from jaundice and disorders of pigmentation is facile. The prognosis is excellent, as the discoloration beings to fade rapidly with correction of this diet and elimination of the carotene-bearing foods. It is possible that observation of faddists or those employing a restricted diet for the reduction of weight may disclose some of these cases of carotinemia.

#### THE DIAGNOSIS AND TREATMENT OF PYELONEPHRITIS\*

DAVID V. HUDSON, M.D.  
TULSA

Pyelonephritis is one of the most common conditions the urologist is called upon to treat, and probably second only to gonorrhreal infection in frequency. The great incidence of this disease and its relation to the mortality of both general and urologic surgery calls for more accurate diagnosis and more energetic treatment. Acute pyelonephritis may easily be confused with influenza, appendicitis, salpingitis, gall bladder disease and other abdominal lesions while chronic pyelonephritis is often mistaken for nephritis. Too frequently both the acute and chronic types are overlooked entirely.

We have been in the habit of using the term pyelitis in a rather broad manner to include most of the pyogenic infections of the kidney. It is well before we proceed to define the terms pyelitis, pyelonephritis and nephritis. True pyelitis is an infection of the lining of the pelvis alone and is infrequent as the infection usually involves the substance of the kidney as well. Pyelonephritis is an infection of both the parenchyma and pelvis. Nephritis is limited to the parenchyma and the process rarely if ever involves the pelvis.

In renal infections therefore the nephritis may predominate and name the condition; sometimes the inflammation of the renal pelvis gives the clinical and urinary picture while parenchyma and renal pelvis may seem to be equally affected and pyelonephritis best describes the disease. It is often difficult to distinguish pyelonephritis from nephritis and a differential diagnosis can be made only after a careful urinalysis. In both acute pyelonephritis and acute nephritis the onset is frequently accompanied by chill followed by fever, there may be pain and tenderness in the region of the kidneys and both may show microscopic and even gross blood in the urine.

In pyelonephritis the urine usually contains relatively less albumen and fewer casts. Leucocytic casts are found in varying numbers. In nephritis hyaline and granular casts are frequently found in considerable quantity but are rarely

\*Read in section of medicine at State Medical Association Meeting, May 13, 1931, Oklahoma City, Oklahoma.

numerous in pyelonephritis. Leucocytes usually occur in quantity in pyelonephritis and organisms in large numbers are found in the stained smear and cultures. Toxic nephritis is characterized by a noticeable absence of leucocytes and bacteria. However suppurative nephritis with or without abscess formation resembles and is often confused with pyelonephritis. The relatively small number of leucocytes and bacteria in proportion to the severity of the disease helps to distinguish it from pyelonephritis. Repeated examinations are necessary in order to determine the specific organism responsible for the infection. Repeated stained smears of the urinary sediment should be carefully made in addition to the cultures as the colon bacillus will often outgrow and crowd out the staphylococcus, streptococcus and other organisms. In every case the urine should be examined for tubercle bacilli.

The X-ray diagnosis of pyelonephritis may be very uncertain in the early cases, the pyelogram showing little if any change from the normal outline of calices and pelvis. In more advanced cases there may be a moderate degree of dilatation of the calices and pelvis or there may be spasm. The dilatation begins in the minor calices extending to the major calices, pelvis and ureter. This usually progresses in the calices with the pelvis failing to dilate in equal proportion. Braasch considers this dilatation due to inflammatory changes rather than back pressure and explained by retraction of the walls of the pelvis or necrosis.

The course of the disease varies greatly. Some of the milder cases clear up promptly under treatment and not infrequently spontaneous recovery without treatment is seen. Many cases develop into a chronic form more or less resistant to treatment and some become progressively worse resulting in complete destruction of the kidney.

It is a well known fact that bacteria may pass from the blood stream through the kidney into the urine and be excreted without demonstrable damage. Very little is known regarding the factors which allow the kidneys to remain undamaged in one case while in another person with apparently normal kidneys, free from stone, obstruction and other predisposing conditions a definite infection takes place.

Chronic pyelonephritis is found in two groups of patients: (1) Individuals with

clinically normal kidneys and (2) those in which the infection is secondary to obstruction, renal stone, injury, etc. Two general types of patients are seen with pyelonephritis: (1) Those who appear to stand the infection very well with little discomfort or impairment of the general health; and (2) those who react considerably to the infection with recurrent fever and pain resulting in more or less continuous ill health. Frequently these individuals will try to keep going in spite of poor health and seek medical advice only after considerable damage to the kidneys has taken place. They also side-step the cystoscopic examination, trying one medicine after another until someone convinces them that accurate diagnosis is necessary in order to carry out appropriate and adequate treatment.

#### TREATMENT

In acute pyelonephritis with fever, pain and tenderness the patient is put to bed with forced fluids, liquid diet and potassium citrate or acetate every two hours until the urine is alkaline to litmus and then every four hours. Tincture of hyoscyanus frequently relieves spasm and burning when there is vesical irritation and may be given with the potassium citrate. Alkalization may be hastened by the addition of sodium bicarbonate to the citrate. When the patient becomes afebrile the fluids may be reduced and methamine substituted for the potassium citrate. Catheterization of the ureters is usually withheld in the acute cases unless there is suspicion that acute hydronephrosis is present due to obstruction caused by congestion and edema at the physiologically narrowed portions such as the uretero-pelvic junction and the intramural portion of the ureter. In cases with faulty drainage the catheter is sometimes allowed to remain in place for three or more days to facilitate drainage and this procedure often forestalls a serious pyonephrosis. Pus and mucus might also obstruct the ureter in which case drainage is established by passing the ureteral catheter. After the acute symptoms have subsided ureteral catheterization and pelvic lavage instillation of silver nitrate, silver protein and the penetrating dye antiseptics has proven effective. Repeated treatments are often necessary altho very good results have been noticed after two or three instillations in certain cases.

The relation of intestinal stasis to pye-

lonephritis has been recognized and is seen probably much more frequently in women than in men. Careful regulation of elimination should be advised in the case of women suffering with constipation. Not infrequently one gets a history of the renal pain being preceded by constipation and general feeling of discomfort in the abdomen. Intestinal antiseptics have been used with varying success and altering the intestinal flora by cultures of other organisms has given promise but requires further investigation.

The experimental work of Rosenow, Bumpus and Meisser has demonstrated that certain strains of streptococci originating in foci of infection such as the teeth and tonsils have a special predilection for the kidneys. Some believe that the colon bacillus so frequently found in the kidney is only a secondary invader of minor importance or a natural inhabitant of the urinary tract. Others consider the colon bacillus the chief offender and the streptococcus and staphylococcus as secondary invaders. Measures should be taken to clear up infections of the skin such as furunculosis, routine examination of the sinuses ears, tonsils and teeth should be made in all cases and corrective measures carried out. Infections of the prostate and vesicles should be taken care of and in women infection of the tubes and cervix often require attention. Infections of the respiratory tract altho not directly responsible as a focus of infection may lower the resistance of the urinary tract enabling the pyogenic organisms or colon bacillus to develop and produce lesions.

Stasis caused by obstruction of the upper or lower urinary tract is a frequent cause of pyelonephritis and should be corrected early. Strictures of the ureter should be dilated. Stasis caused by undue mobility of the kidney resulting in kinking of the ureter should be corrected by supportive measures or nephropexy. Surgical interference is particularly indicated in those cases where the ureter is compressed by aberrant vessels. The selection of cases for surgical treatment must be done very critically as many of the loops and bends frequently seen in ureterograms are not true kinks and do not cause obstruction. In the lower urinary tract, prostatic hypertrophy, median bar, congenital valves of the posterior urethra and urethral stricture favor infection of the kidney by producing stasis.

Stones are frequently found even in

cases where they were least suspected and should be removed. Where the patient will not consent to a cystoscopic examination at least an X-ray of the kidneys, ureters and bladder taken after cleaning out the large bowel by enema should be insisted upon.

Internal medication by means of various urinary antiseptics by mouth altho the treatment of choice in acute infections has a place in chronic pyelonephritis. Salol, methanamine, caprocol, neutral acriflavine, pyridium and allied compounds should be used and alternated at intervals.

Nephrectomy is resorted to in cases of unilateral disease with extensive damage where the other kidney is able to function adequately. Very resistant and recurrent infections are sometimes drained surgically, but this rather radical procedure is not often employed.

#### CONCLUSIONS

1. Pyelonephritis is often confused with abdominal lesions, influenza and nephritis.
2. Careful urinalysis is necessary for an accurate diagnosis and stained smears should be made as well as cultures as the colon bacillus tends to outgrow and crowd out other organisms in the cultures.
3. Early catheterization and drainage should be done where acute hydronephrosis is suspected.
4. The systematic removal of all foci of infection and the correction of conditions causing stasis early in the course of the disease are most important.

305 Medical Arts Building.

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#### DIPHTHERIA TOXOID (DIPHTHERIA ANATOXINRAMON) IN INFANCY

Joseph Greengard, Chicago (Journal A. M. A., July 25, 1931), vaccinated 117 infants, ranging in age from 4 days to 2 years, against diphtheria with two 1 cc. doses of commercial diphtheria toxoid. Complete immunity, as measured by the Schick test, was obtained in 98 per cent of the infants. The appearance of immunity was quite rapid, a considerable proportion showing a negative Schick reaction two weeks after the second injection. Reactions were noted in only 2 of 147 cases; both of these were very mild. In a small group in whom the persistence of immunity was tested, one case occurred in which the Schick reaction turned positive six months after vaccination. Three cases of clinical diphtheria occurred during the period of investigation. One of these appeared in a vaccinated child with a succeeding negative Schick reaction. On the basis of his observations the author concludes that immunization against diphtheria, as measured by the Schick test, can be produced rapidly and safely in a high proportion of infants by the use of two 1 cc. injections of diphtheria toxoid.

## THE DECLINE AND REVIVAL OF MOVABLE KIDNEY SURGERY\*

BRANSFORD LEWIS, M.D., B.Sc., F.A.C.S.  
Professor of Urology, Medical Department of  
St. Louis University

GRAYSON CARROLL, M.D., F.A.C.S.  
Assistant Urologist, Medical Department of  
St. Louis University

MARTYN SCHATTYN, M.D., A.B.  
Assistant Urologist, Medical Department of  
St. Louis University

ST. LOUIS, MO.

Movable kidney has had a remarkable if not unique career in the hands of the medical profession in the relatively short time since it was described in 1885 by Glenard.

It soon came to be recognized as a factor of great moment in the health and happiness of many individuals whom it affected. It was accepted as a potential cause of suffering seldom surpassed by the diseases affecting humanity; and in the early developments of surgical measures for its correction, the profession considered itself fortunate in being able to cope with so formidable a malady.

Innumerable methods of operating, besides many palliative measures, were proposed and utilized, many of them ingenious and successful, others failures. Renowned surgeons the world over eventually were converted to belief in the justification for replacing and anchoring the kidney (nephropexy) in its proper location and position, practiced it and recorded countless numbers of successes. In this country might be mentioned such illustrious names as Howard Kelly, Edebohls, Goelet, and a host of leaders in surgery in all parts of the union; while abroad the practice of nephropexy was equally as popular.

There was, then, no lack of precedent or authority for the continuation of the practice. Nevertheless some eight or ten years ago enthusiasm for this work seemed, to be waning, resulting from accumulating reports of failure or relief afforded by operation in the first place, or of failure of the anchored kidney to remain in the position in which it had been placed.

So nephropexy gradually fell into disrepute and was finally condemned by many as unworthy the further confidence and

practice of the profession. So universal was this adverse sentiment in the profession that those who still retained confidence in it were almost ashamed to acknowledge it and few seemed brave enough to champion its cause. It was said two years ago, that at a noted surgical clinic only two such operations had been done in the previous two or three years; and that the propriety of such work was seriously questioned.

But fortunately for those suffering from this distressing malady, there have been two sides to the question; and a rising tide of protestors against the unmerited condemnation of so valuable a procedure has made itself heard in the writings of authors the country over. The authors of the present paper are glad to have been early numbered with this protesting contingent. During the past three years, we have, on invitation, presented papers on the subject, together with illustrative slides, in Illinois, Arkansas, Texas, Missouri, Indiana, Oklahoma, Pennsylvania, Tennessee, Florida and British Columbia; and have never yet met with a serious denial or dispute of the justice of our contentions.

Further, to justify the conviction that we are in good company in our endeavors to reclaim nephropexy to its rightful position, we point to the fact that during the past five years many forceful contributions have appeared in the literature strongly advocating such work, among them the following:

C. Emerson<sup>1</sup>, V. J. O'Conor<sup>2</sup>, A. Ladwig<sup>3</sup>, B. A. Thomas<sup>4</sup>, Vozenilek<sup>5</sup>, B. Rado<sup>6</sup>, A. Campatelli<sup>7</sup>, A. Riley<sup>8</sup>, A. Jurozz<sup>9</sup>, L. Pansin<sup>10</sup>, Lewis and Carroll<sup>11</sup>, A. J. Scholl<sup>12</sup>, J. Van Gulik<sup>13</sup>, Bremerman<sup>14</sup>, E. Papin<sup>15</sup>, G. Pisano<sup>16</sup>, W. Billington<sup>17</sup>, M. Klika<sup>18</sup>, P. Gelffer<sup>19</sup>, F. Hinman, Vecki and Johnson<sup>20</sup>, K. Horie<sup>21</sup>, T. H. Hammond<sup>22</sup>, C. P. Mathe<sup>23</sup>, W. L. Downing<sup>24</sup>, Burford and Glenn<sup>25</sup>, P. Janssen<sup>26</sup>, Fowler<sup>27</sup>.

Next week the American Urological Association at its meeting in Memphis, will hear an address on movable kidney by one of the world's leading surgeons, Mr. Frank Kidd of London, followed by a symposium of discussions by Dr. Manges of Philadelphia, Arthur Chute of Boston, Braasch of the Mayo Clinic, David McKenzie of Montreal, Lowsley of New York and Bransford Lewis. This further shows the interest that is being taken in this supposedly "dead issue" of surgery.

\*Read by invitation before the General Assembly of Oklahoma State Medical Association Meeting, Oklahoma City, May 12, 1931.

Most of the authors above listed are ardent advocates of the great value of nephropexy and, like ourselves characterize it as one of the most useful and valuable operations in surgery.

In searching for the cause of the widespread antipathy for this work, we must admit that there has been reason enough to justify criticism of it. The reason, in the first place, revolves around the slipshod and often erroneous diagnoses that were formerly made from superficial methods of examination. The errors resulting led to nephropexies that were unjustified and inappropriate. If one anchor a kidney when the real cause of the pain is unrecognized appendicitis he is destined to failure in his surgical endeavor; but the fault rests with the operator, not the operation. If we blamed the operation of appendectomy for the numerous instances in which the appendix has been removed when the real trouble was ureteral stone or movable kidney with ureteral kink, appendectomy itself would, no doubt, have long since been relegated to oblivion.

In a recent paper on chronic appendicitis by Larimore<sup>23</sup> the author says there is a consensus of opinion among such surgeons as Lichty, Stanton, Ehrlich, Bettmann, Carnett, Boles, Harris, Case, Blackford and Dwyer to the effect that 40 percent of appendectomies have failed to relieve the symptoms for which they were done. This in itself, says the author, "would be a serious indictment to the practice of any remedial measure or scheme of treatment."

But we do not hear the widespread assertion that on this account appendectomy is a back number and should be dropped from surgical practice.

There is a pre-war and a post-war aspect to this question of diagnosis, that really makes all the difference in the world and brings about the demand that the profession reconsider its adverse verdict and reinstate the prodigal in its affections.

In the exacting diagnosis required in the present period, two points in particular are required before operation is sanctioned.

(a) Proof that the suspected kidney is pathologically movable and is the cause of damaging effects, *i. e.*, kinked ureter with urinary obstruction, etc.; and

(b) Proof that the movable kidney is causing the symptoms of which the patient complains.

The old "laying-on-of-hands" method of examination does not suffice for this proof, and it is discarded for much more certain and serviceable modern measures, connected with urography and postural tests as delineated by X-ray. Uretero-pyelograms are made either by intravenous injection of skiodan, or by cystoscopy and ureteral catheterization.

Before the injection for the pyelogram is given a "flat" negative (No. 1) is made to disclose any possible stone-shadows, etc. Then, following the pyelographic injection, No. 2 negative is made with the patient in the recumbent position, flat on her back. After this she is raised into an upright position and negative No. 3 is made. On being developed, negatives No. 2 and 3 plainly show the amount of descent or displacement of the suspected kidney, as well as the amount of dilatation of the kidney pelvis (hydronephrosis), kinking or dilatation of the ureter, etc. When you see some of these negatives with kidneys dropped down into the bony pelvis and the ureters angulated and kinked so that drainage through them is impossible, you easily understand the reason for the sufferings of the patient, whether of one or ten or more years' standing.

And when you see the upright negative of the same case, taken a month or more after the operation and observe the kidney located well up in the flank in a proper position for drainage, the pelvis decreased in size, the ureter straightened and freed from kinks, you understand the reason for the patient's claims of freedom from the old pain and misery that may have tortured her for years.

Such patients are irrepressible in their enthusiasm over the relief obtained, and are impervious to the arguments of pessimists that "there is nothing in this movable kidney foolishness."

Husbands, too, are impressed with the happier demeanor of their wives and declare in favor of this surgical work as compared with exchanging old wives for new.

Taking his cue from Goldstein's<sup>22</sup> studies of fractional uretero-pyelography, O'Connor<sup>23</sup> determines the emptying-time of the kidney pelvis and ureter as indicating the presence of ureteral or pelvic stasis. Nor-

mally the ureter and pelvis are drained of opaque contents (sodium iodide solution) within six to eight minutes after injection, the patient meantime in the upright position. The eye of the catheter rests in the lower part of the ureter while the injection is being made; and successive X-ray negatives are taken to determine the rapidity of evacuation.

The other reason for the discrediting of nephropexy was the frequency with which there was relapse following the older and more complicated operations. The kidney didn't "stay put," so to speak, and with its breaking away from its anchorage there was renewal of kinking, obstruction and the train of symptoms of former days. This objection has been removed by simpler and more secure methods of anchoring, and the retention of the operated patient in bed long enough (four weeks) to establish a firm attachment of the kidney to the adjacent abdominal walls. During this period the patient may lie on her back or on the side affected but not on the opposite (healthy) side.

Our evidence in support of nephropexy for pathologically movable kidney consists mainly in the X-ray negatives of our patients taken before and after operations; taken in the recumbent and the reclining positions, successively; and showing the damaging effects to kidneys and ureters of kinking or angulation that brings about obstruction, back-pressure, infection, etc. A few slides only are to be shown, in deference to brevity.

In order to definitely check up on the present condition of operated cases we have recently been taking intravenous negatives where possible, and some of these, also, will be shown with the results disclosed.

#### SLIDES

Case 1. Mrs. J. S.—r, age 52. (Three slides: Recumbent, upright; and four weeks after operation.) Recurrent attacks of severe pain in the right side and thigh for ten years; occasional nausea and vomiting. Appendectomy was advised by surgeon but before operation, he requested a urological examination at our hands. This proved fortunate because our uretero-pyelogram showed marked hydronephrosis with stricture and kink of the ureter and moderate ptosis of right kidney.

Nephropexy, Nov. 12, 1928. Recovery. Post operative slide (four weeks) in upright position shows the kidney in its proper location, the pelvis reduced in size and the ureter straightened out, affording good drainage.

Case 2. Mrs. A. L.—n, age 61. (One slide.) Was

treated for lumbago for eight years, the attacks often requiring morphine for relief. Urine clear. Right kidney was descended into the iliac fossa; moderately dilated pelvis and kinked ureter.

Nephropexy, July 28, 1928, followed by complete relief.

Case 3. Mrs. M—g, age 29. (one original slide, and one Skiodan check-up.) Five years of left lumbar pain radiating to the groin and frequent urination, worse at time of menstrual periods. Urine clear and healthy. Slides: Ptosed left kidney, tortuous and kinked ureter.

Nephropexy, September 8, 1929. Complete relief. Skiodan check-up slide, April 14, 1931, taken in upright posture showed left kidney in good position and location. Painful attacks relieved.

Case 4. Mrs. A. R—n, age 51. (Two slides: one upright and check up, three years apart.) Five years of suffering that diminished her activities until finally she could do nothing but sit around her home. Even a game of bridge would usually start the attack of pain and finally would send her to bed. Pain in the right side running into the right hip and thigh gave a strong suspicion of trouble with the hip joint. Before her physician was finally convinced of the justification for nephropexy, he advised her going home from the hospital a while. A week later a hurry call advised us that the patient was having chills and high temperature, 106 degrees. We sent her back to the hospital, cystoscoped, catheterized and drew off four ounces of foul infected urine from the right kidney, which gave relief from the intense back pressure pain and supplanted the fever with a normal temperature, as long as we kept the ureteral catheter in place and washed the kidney pelvis with antiseptic solution. Thereupon, it was agreed by the physician and family that nephropexy was advisable. It was done on October 22, 1928, after which there was complete recovery from the attacks of pain, with renewal of weight and general health and her happy outlook on life.

Skiodan check-up, April 29, 1931, in upright position shows the kidney still in its correct location and position.

Case 5. Mrs. T. K—r, age 70. (Two slides: Recumbent and upright.) Over twenty-five years of recurrent attacks of pain in the back which were supposed to be lumbago. They were often so severe that she had to be kept narcotized with morphine or other sedative for days at a time. She was writhing in such an attack at our first interview with all the family standing about in awe-stricken sympathy. She had been under the influence of morphine for three days and nights at that time, which, however, did not succeed in relieving all the pain. Her weight was 250 pounds. The first pyelogram (recumbent) showed the kidney apparently in its normal position; the second (upright) showed the kidney descended toward the pelvis with the ureter kinked, explaining the agonizing pain and recurrent septic temperatures that had prevailed before the removal of the pent-up urine by ureteral catheterization. While the catheter drained the pelvis, there was no need for morphine or sedatives.

Nephropexy, October 22, 1928, restored her health and gave permanent freedom from the attacks of twenty-five years standing.

Case 6. In contrast to the above seventy year old patient is the one now presented; a little girl,

Evelyn O—n, four years of age. (One slide). For the most of her young life, she had suffered from pain in her left side accompanied by frequent passing of very purulent infected urine. Her physician, Dr. Costello, had recognized the presence of pyelitis, but referred her for more definite diagnosis. The slide shows the left kidney low down in the pelvis (congenital ptosis) with the ureter shortened so that it was obviously impossible to replace this kidney in its proper location. The ureter on the opposite side was angulated and kinked. Since no operation could be done, the patient was given repeated cystoscopy with ureteral catheterization and pelvic lavages, which she underwent with local anesthesia only and regained her health and a very comfortable position within a space of six months.

Case 7. Mrs. Pansy G—n, age 36. (One slide.) Dragging and debilitating pain in the right side a year before coming in June, 1926.

Nephropexy, June 7, 1926. Complete recovery and a jubilant patient ever since. Skiodan check-up, April 30, 1931, shows kidney in perfect position and kink of ureter eliminated.

Case 8. Miss S—e. (Two slides: supine and upright. Pain in the right side three years. Marked ptosis. Nephropexy, relief.

Case 9. Mrs. L—x, Tulsa, age 51. (One slide.) Five years of symptoms with pain in the back, right side, radiating to the groin. Later, dull, aching pain in right loin.

Nephropexy, November 21, 1925. Report of good health received.

Case 10. Mrs. Mabel S—t, Tulsa, age 28. (One slide: upright.) Symptoms eight months. Acute, severe pain right lumbar region radiating down into groin; frequent and burning urination. Slides show markedly ptosed and dilated right kidney.

Nephropexy, June 11, 1928. Recovery. Husband reported April 18, 1931, that Mrs S—t is in fine condition and much delighted with her recovery.

Case 11. Mr. D—s, age 28. (Two slides: Recumbent and upright), showing bilateral ptosis of the kidneys, explaining the pain that had existed in his right side for four years previous. A belt obtained the desired relief and reports from him since that time indicate that he is exempt from pain as long as he wears his belt.

Case 12. Mrs. H—m, age 58. (One slide: upright). Extreme ptosis. Dull pain in back and side for ten years.

Nephropexy performed April 26, 1929. Recovery.

Case 15. Mrs. N—s. (Two slides showing operation). Polycystic kidneys, and one ptosed.

#### OPERATIVE FEATURES

Experience in this work has shown that there are certain operative requirements formerly unrecognized that must be fulfilled in order to attain uniform success. They are:

Complete exposure and mobilization of the kidney and ureter well down to the brim of the pelvis. This permits release from adhesions or attachments to the ure-

ter and pelvis that might be interfering with drainage and contributing to the pain. Small ureteral stones that have failed of demonstration by radiography have been thus discovered and removed as a complicating factor<sup>24</sup>. Removal of all fat that might interfere with intimate contact between kidney and surrounding muscle.

Anomalous vessels supplying the lower kidney pole and crossing the adjacent ureter should always be sought and disposed of if found.

Finally before placing the sutures for anchorage, a test of replacement should be made for both kidney and ureter, the latter being straightened out in its new bed while space for the kidney high up is provided by pressure with gauze-covered fingers (Foley<sup>25</sup>). Also, the kidney is replaced with its pelvis in a dependent position, to facilitate drainage (Fowler<sup>26</sup>).

We have considered it of advantage to scarify the capsule for future plastic adhesion but not to decapsulate, the capsule itself affording assistance in holding the three 20-day chromic catgut nephropexy sutures. These sutures are placed, as advised by Kelly<sup>27</sup>, in a triangular manner on the posterior surface of the kidney, the first (upper) one with the apex directed upwards and passed through the muscles between the 11th and 12th ribs where later they are tied just snugly and control the location and position of the kidney. Two others are also placed in a triangle with the apex directed slightly backwards, the strands passing through the posterior part of the quadratus lumborum muscle and fascia. With the kidney then replaced, the sutures are tied in sequence from above downward.

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1020 Paul Brown Building.

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RECIPE FOR COOKING MEAD'S CEREAL

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When cooked according to the following recipe, and served with milk, Mead's Cereal is eagerly accepted by infants:

Place 2 rounded tablespoons Mead's Cereal and 1 cup cold water in upper section of double boiler, mixing with fork or wire whip. Place over direct flame for 10 minutes, while stirring. Replace upper section over lower section of double boiler and continue cooking for  $\frac{1}{2}$  hour the night before, and  $\frac{1}{2}$  hour before serving, stirring occasionally, or, leave double boiler over "pilot" gaslight until morning. This makes a day's supply for the average infant. Number of tablespoons fed is increased from 2 tablespoons, according to age.

For older children, the consistency may be increased by using  $\frac{1}{2}$  cup of Mead's Cereal and 2 cups water (2 to 3 portions). Served with cream and sugar, Mead's Cereal deliciously supplies the growing child with protein, fat, carbohydrate, calories and what is more important—Calcium, phosphorus, iron, copper and other essential minerals.

## TRAUMATIC RUPTURE OF THE KIDNEY\*

CLINTON K. SMITH, M.D., F.A.C.S.  
KANSAS CITY, MO.

Probably no other traumatic injury requires more careful, painstaking, and watchful evaluation of symptoms than potential rupture of the kidney. Curiously enough the clinical manifestations are oft times not in keeping with the gravity of the injury, particularly, if bodily injury has not been sufficiently severe to otherwise inconvenience the patient.

In one of my cases the patient, a football player, finished the game after receiving the injury which subsequent observation proved to have resulted in rupture of the kidney. To be sure, in those cases where the damage to the kidney is extensive, the patient is acutely ill from the outset.

## TYPES OF RUPTURES

The actual pathological character of the injury may vary from a small transverse break in the renal cortex, sometimes involving one side only, to a complete shattering of the kidney, simulating the bursting of an explosive shell. Usually, the rupture represents a transverse break involving the capsule and cortex from side to side. As often as not the break does not open the calices or pelvis. In the more severe types of injury however, the pelvis and the adjacent peritoneum may be ruptured adding greatly to the gravity of the situation.

It is of interest to speculate on the dynamics of rupture of the kidney. On first thought, this organ, protected by the ribs and cushioned in a surrounding bed of fatty tissue, should appear to be comparatively immune from injury by direct force. In this connection, it must be remembered, that the kidney, unlike most organic structures of its type, is a semi-hollow viscus within which is maintained a constant internal pressure or tension. This idea kept in mind, together with observation of the character of the damaged renal tissue in these cases, indicates that the dynamic force productive of rupture is usually in the character of concussion rather than direct force to the kidney.

## SYMPTOMS AND DIAGNOSIS

The diagnosis is the all important angle

\*From the department of Urological Surgery, University of Kansas School of Medicine.

of the proposition. Primarily the history of the injury is of cardinal importance. In most instances, there is a history of direct trauma to the kidney region, either ventral or dorsal. A too close adherence to this rule however, may be misleading, as rupture of the kidney may result from indirect violence; for example—where the patient may fall striking in a sitting position with no direct violence to the kidney region whatsoever. The one rather constant and foremostly significant symptom is blood in the urine. Given a history of injury by falling, collision, or other direct violence, with blood in the urine, the possibility, or preferably the probability, of rupture of the kidney must be kept uppermost in mind until careful observation proves otherwise. It is at this point that the judicious evaluation of the symptoms and physical findings is of the utmost importance.

Hematuria, while a rather constant primary symptom may, and often does, cease within a few hours. Hematuria often has no direct relation to the severity of the lesion as the ruptured cortex may be involved in violent bleeding without any direct connection with the renal pelvis. In such instances hematuria is an inconstant symptom. In fact, in most cases the hematuria is very likely a matter of intense peri-pelvic congestion rather than direct bleeding of a ruptured blood vessel emptying blood into the renal pelvis.

#### PHYSICAL AND CLINICAL ASPECTS

In most instances there is a history of direct violence to the kidney region. The patient complains of pain and tenderness over the kidney area. In cases where the break is small the patient may, if disinclined to give in to his injury, continue with the undertaking at hand until bleeding occurs sufficient to produce shock. Where the injury is severe enough to cause immediate and profuse hemorrhage the patient shows immediate signs of shock, particularly, when there is rupture of the peritoneum.

Upon clinical observation rests the burden of the diagnosis. In every case of suspected renal injury the patient should be immediately hospitalized where careful clinical data may be obtained and constantly evaluated. Any progressive rigidity or bulging over the kidney area should be noted. A falling blood pressure and rising pulse rate should indicate to the surgeon the probability of increasing bleeding.

As previously stated hematuria is a rather constant symptom. However, this may be absent. In certain instances the ureter may be ruptured, while in breaks confined to the cortex only, no blood may enter the renal pelvis. In either event hematuria is an unlikely symptom.

With rest in bed the clinical picture may show a marked improvement. This may foster a false sense of security as, even though bleeding may spontaneously cease, infection usually supervenes resulting in perinephritic abscess as occurred in two of my cases. A rising white blood count and septic temperature curve is indicative of infection.

#### CYSTOSCOPIC DATA

Generally speaking, cystoscopy, except to empty blood clots from the bladder, has very little usefulness in these cases. The introduction of the ureteral catheter to the suspected kidney is contraindicated unless immediate operation is contemplated. There is very little information to be gained by its use. Where the break has not extended to the renal pelvis the pyelogram is normal. Such information is misleading as exemplified in one of my cases in which the kidney, at operation, appeared to have practically "exploded," yet the pelvis was intact. Where the break involves the pelvis, pyelography can only aggravate an already grave situation owing to the extravasation of the pyelographic media with the probability of extending the infection and perhaps provoking the recurrence of hemorrhage.

To summarize the cystoscopic proposition the diagnosis is dependent on clinical observation and physical findings to which the cystoscopic data adds little of value while increasing the hazard. When operation is contemplated however, cystoscopic data should be obtained relative to the opposite kidney, which is altogether a different proposition.

#### MANAGEMENT

The management in every instance is essentially surgical. Although it is true that in most cases of ruptured kidney, the patient will not bleed to death, this is not altogether the point in question. Provided the patient is not in acute shock, there is very little risk or inconvenience to the patient in exposing the kidney. On the other hand, an unrecognized or disregarded hemorrhage always results in serious damage to the kidney, and in many instances,

complete destruction, owing to perirenal pressure and usually the subsequent development of infection and necrosis terminating in perinephritic abscess. In other words it is better, occasionally, to expose a kidney unnecessarily, than to have our hand forced later under unfavorable surgical conditions. Finally, I feel that exposure of the kidney is advisable in every case where the physical and clinical signs warrant presumption that rupture of the kidney has occurred. In one of my cases however, the patient a child age 5, made a good recovery without operation, a matter of good luck rather than good judgment.

#### WHEN TO OPERATE AND WHAT TO DO

As previously stated, I feel strongly that in every case where the diagnosis is at all probable, the kidney should be exposed. Frequently on exposure the condition, which often is found to be of more serious import than suspected, can be judiciously handled. Bleeding may be controlled, the break repaired, or when apparently, there is no hope of salvaging the kidney, a nephrectomy may be done. Furthermore, in all cases adequate drainage can be established circumventing potential perinephritic infection.

The surgeon often finds himself in the situation where it is difficult to decide as to when to operate. If the patient is fairly comfortable his consent is not always obtainable, while on the other hand, if in severe shock he is not a desirable surgical risk. Unless the patient is in severe shock the kidney should be exposed without delay. It is here that cystoscopic procedure comes into use. A ureteral catheter should be introduced to the opposite kidney, a functional test and roentgenogram made to determine whether or not the affected kidney may be safely removed if desirable.

Although I have not had the opportunity to make use of uroselectan in these cases, it would seem a most useful diagnostic adjunct. Where severe shock obtains, effort should be made to tide over this period, as in ruptured ectopic pregnancy, before operation is undertaken. However, should the clinical picture be indicative of progressive bleeding and shock, the kidney should be exposed without delay and the patient's condition fortified meanwhile by intravenous saline stimulants or blood transfusion.

What to do after exposing the kidney

often calls for the exercise of unusual judgment. Obviously, conditions encountered are variable, and the surgeon must be able to decide on the spot what disposition to make of the situation. In cases of moderate degree of rupture hemorrhage can be controlled, and the break repaired, leaving a useful kidney. Here again the advantage lies with early operation, Unless the break involves branches of the renal artery any means of holding the parts involved in the break in apposition suffices to control bleeding. Experimental work has shown that the kidney may be widely incised, the parts put in apposition and bleeding controlled, followed by normal healing without the aid of any suturing whatsoever. However, I can see no disadvantage of matress sutures carefully placed and loosely tied to maintain the broken parts in apposition.

The advantage of early exposure lies in the fact that healing is better promoted while the wound in the kidney is fresh. Furthermore unnecessary loss of blood is prevented and the hazard of infection largely eliminated by the use of drainage at this time. With this plan kidneys are saved which later would come to nephrectomy owing to necrosis incident to blood extravasation and infection.

As previously mentioned, a survey based on cystoscopic data should be made of the opposite side, if at all possible, before operation. Information thus obtained is often the key to the decision concerning what to do with the affected kidney at operation.

#### CASE REPORTS

Case 1. M. J., male, age 19, while engaged in playing foot ball, was injured, October 16th, 1925, by a kick over the kidney region. Although in considerable pain he continued to play and finished the game. During the next few hours this patient complained of increasing distress in the left kidney region, showed considerable symptoms of shock with rapid pulse rate. There was abundant blood in the urine. The following day he had recovered from symptoms of shock but continued to pass blood with the urine and complained of dull pain in the left kidney region. On the eighth day following his injury he was brought into the hospital and the writer called in consultation.

Examination at that time disclosed considerable swelling in the left kidney region with induration, rigidity, and extreme tenderness. The temperature was 102.6, pulse 100. The white blood count was 18,000, red blood count 4,200,000. The urine was normal.

A diagnosis of perinephritic abscess was made with possible rupture of the kidney. Cystoscopic data from the opposite side was normal.

**Operation:** On exposure, the left kidney was found to be imbedded in a mass of disintegrated blood clot with considerable pus formation. After this was cleared away a distinct break extending transversely across the cortex near the upper pole of the kidney could be seen. The edges of the wound were slightly necrotic but normal healing was apparently underway. The peri-renal debris was carefully cleared away and the wound closed with drainage. No urine drained from the wound, and although, there remained a pus draining sinus for several weeks, the patient made an uneventful recovery.

Interest attaches to this case in that, although, with a severely wounded and bleeding kidney, this patient had been able to continue with the strenuous exertion of a foot ball game. His bleeding subsided, but a perinephritic abscess developed which, had drainage not been established, would very likely have resulted in destruction of the kidney owing to the open wound in the cortex.

**Case 2.** Male child, age 5, while riding a tricycle, May 26th, 1927, fell, striking on his left back against the edge of a concrete curbing. He complained of internal pain over the left kidney region and was immediately brought into the hospital in a condition of shock and passing blood in his urine. Cystoscopic examination disclosed blood escaping from the left ureter, and clear urine from the right. No attempt was made to pass a ureteral catheter. A diagnosis of rupture of the kidney was made and operation advised which was refused by the parents. The following day his condition was slightly improved. He continued to complain of pain over the left kidney region, but less severe in character. The area over the kidney was discolored, very tender and slightly swollen. During the following ten days patient continued to pass blood in the urine intermittently. There was slight rise of temperature and the white blood count rose to 15,000. His red count fell from 4,800,000 to 4,300,000. From this time on he made a slow but steady recovery, uneventful except a slight daily rise of temperature and the passing of a few blood clots with the urine.

The interesting feature concerning this case is, that with all the clinical manifestations of rupture of the kidney this child made a good recovery without operation, owing no doubt more to good luck rather than good management.

**Case 3.** Male, age 46, meat cutter by trade. This man, while lifting a heavy quarter of beef, slipped and fell in a sitting position while still holding the beef. He immediately complained of pain in his back, felt weak and ill, was taken home and remained in bed under the care of his family physician. For several days he passed blood in the urine. On the fourth day following his injury he was sufficiently recovered to return to his work. He continued however, to complain of pain and tenderness over the right kidney region extending downward and forward. This condition became more aggravated and on the third day after returning to work he again took to his bed. On September 10th, 1928, three weeks following his injury he entered the hospital.

Examination disclosed swelling and tenderness over the right kidney region and the lower right abdominal quadrant. More pronounced in the latter area. Temperature 102.8. White blood count 24,000. There was considerable pus in the

urine. This patient appearing critically ill. A diagnosis of perinephritic and psoas abscess was made.

**Operation:** An incision was made through the outer border of the right rectus, the peritoneum pushed up and a large amount of pus liberated. As the patient's condition was very poor the kidney was not exposed as it was thought that sufficient drainage had been established to care for the perirenal abscess, presuming that the pus liberated through the abdominal incision had descended along the psoas from above. His condition improved but his white blood count remained around 20,000 with a septic temperature curve. At this time cystoscopic data from the opposite side was normal. On the third day following the first operation the right kidney was exposed and a large amount of pus and fibrinous material was evacuated. On examination of the kidney it was noted that a large rectangular break had occurred involving the cortex transversely on the ventral aspect near the lower pole and extending downward to the tip of the kidney. As the patient's condition was very poor, no attempt was made to remove the kidney. The necrotic tissue and debris was removed and the wound in the loin closed with drainage. This patient drained urine through the loin wound for a period of about ten days. Convalescence was otherwise uneventful.

Interest attaches to this case in the autonomic control of the hemorrhage and that this patient was able to resume his work within a few days notwithstanding the seriousness of his injury.

**Case 4.** A male, age 38, while driving his automobile September 28th, 1930, collided head-on with another car. He was thrown through the door on the driver's side. He thinks a large cake of ice, which was on the back seat of his car, struck the back of his seat throwing him through the door. He was brought into the hospital.

Examination disclosed numerous bruises and contusions but no broken bones could be detected. He complained of pain and extreme tenderness over the left kidney region. He was in shock. Pulse 100, weak, temperature 97°F., and passing blood in the urine. There was slight bulging and extreme tenderness over the left kidney.



FIGURE 1, CASE 4  
Kidney removed, note shattered condition of cortex. Pelvis and calices intact.

A diagnosis of ruptured kidney was made and operation advised as soon as he recovered sufficiently from his symptoms of shock. The day following he was considerably improved. On the insistence of another consultant a pyelogram was made, on the left side, which showed a perfectly normal outline. During the next two days he continued to improve. The urine became clear.

At this time a functional test was made of the opposite kidney which returned normal output of phenolphthalein. On the fourth day following his injury he again began to pass blood in the urine in larger quantities than previously. He complained of distress on passing rather large clots from the bladder. His temperature rose to 103, white blood count 19,000, red blood count 3,900,-000. At this time the writer insisted on operation.



FIGURE 2, CASE 4

Pyelogram of ruptured kidney. Shown in Figure 1. Normal outline pelvis and calices.

**Operation:** On October 4th, 1930, the left kidney was exposed and a large amount of disintegrating blood clot removed. On inspection the appearance of the kidney gave the impression of an exploded shell. There was a section in the mid-portion, on the dorsal aspect, about 6 centimeters in diameter that was completely detached from the kidney. In addition to this, there was a break extending longitudinally upward involving the upper pole, and transverse break clear across the lower pole. It seemed astounding that so much damage could have occurred to this kidney and bleeding automatically cease. As considerable necrosis had occurred it seemed advisable to remove the kidney.

Convalescence was slow but uneventful, except distress on emptying the bladder, until the large amount of clotted blood was washed out.

Interest attaches to this case first, in that with such marked injury to the kidney, a normal pye-

rogram was obtained. This can be explained only on the ground that the line of the breaks in this kidney skirted around the pelvis and major calices. Second, that autonomic hemostasis should supervene in the face of such extensive breaking up of the kidney cortex. Early operation in this case, would not have saved the kidney but, would have spared the patient considerable loss of blood with a much shorter convalescence.

#### CONCLUSIONS

1. Traumatic rupture of the kidney is always a serious condition in which the clinical picture is not always representative of the gravity of the injury.
2. The diagnosis is primarily the outstanding problem, and is dependent on clinical and physical factors alone.
3. Cystoscopic investigation of the suspected kidney is contraindicated, as information from this source is unreliable, and usually aggravates the condition.
4. Management is always surgical and the kidney should be exposed in all instances when there is reasonable evidence to suspect rupture.

505 Professional Building.

**DISCUSSION:** Dr. Bransford Lewis: St. Louis, Mo.

I have not much to say on this subject excepting to compliment Dr. Smith for his sound judgment in the description of the requirements. I think that these are the particular requirements; good judgment, conservation, and the nerve to do something. I believe in these cases that the diagnosis is obscure, the situation renders it such. If we have bleeding outside from a ruptured kidney, we do not get very pronounced physical findings. It is like it is in perinephritic abscess. This condition is very difficult to diagnose. It is insidious and we have few things to guide us. That very fact and taking into consideration the potentialities of disaster that may follow, leads me to the belief that there is greater danger in waiting on these cases than in operating or opening them up and determining the question of whether there is rupture and bleeding. We may have bleeding which will go to a very dangerous extent while we are waiting for a blood count from the laboratory. If we do not have an early disaster, we will probably meet with an infection and breaking down of blood clot which requires opening at a later date. I think the better judgment is to get the patient over the immediate shock and get him in condition, and then without an en-

tirely satisfactory proof of the subject, open up and determine the question.

We from Missouri have to be shown. "Show us, and let us see what the situation is in there." That is the conservative action. We cannot recognize the condition until we get in there and see. One could go on and discuss a lot of detailed questions, differential diagnosis, etc., but I am going to close.

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**DISCUSSION:** Dr. W. J. Wallace, Oklahoma City:

There is nothing that I have to say only that I am glad to have heard this paper as it gives us a little more courage and confidence in being able to guide our advice. It requires a good deal of nerve when a person passes a little blood following a blow, to advise an exploratory operation. Of course we meet with objection on the part of the family and friends, but we should not wait too long. It is not always the size of the blow that will produce this condition. Sometimes a small or light blow will produce a fracture, or trauma of the cortex of the kidney. It depends on the position that the patient is in, when he receives the blow, just how serious the injury will be. All of us have had cases, where in trauma, there would be some blood passed and fortunately after rest and observation this condition would clear up; but where we have shock, and prostration as described in the paper by Dr. Smith, I think the correct thing to do is to explore.

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**Dr. Clinton K. Smith:** Closing Discussion:

I wished to present this paper to the general practitioner as it is he who primarily sees these cases rather than the urologist or surgeon.

I do not believe that every case is going to bleed to death or terminate in disaster. However we must keep constantly in mind the potential seriousness in these cases and act without delay. Of foremost importance is the recognition of the condition. Finally, I feel that once we are satisfied of the condition and advise operation that we should either be permitted to operate or let some one else assume the responsibility in the case.

## SOLITARY CYST OF THE KIDNEY WITH CALCIFICATION—A CASE REPORT\*

J. M. BYRUM, M.D.  
SHAWNEE

During my twenty-five years experience in doing a limited amount of surgery, I have not before seen a solitary cyst of the kidney. Dr. Herman L. Kretschmer of Chicago, reported five cases in the Journal of the American Medical Association in July, 1930, three of which were correctly diagnosed only at time of operation, notwithstanding thorough physical, laboratory and X-ray examinations had been made. The other two cases were reported from routine autopsy findings. His review of the literature on the subject located one hundred forty-five other similar cases which with his five made a total of one hundred fifty reported at this time.

This seeming rarity prompted me to report my case. Furthermore, when I began to seek for literature on calcification of such cysts, I was more bewildered than ever, since Kretschmer did not mention calcification in his review. It is probable, therefore, that calcification and calculi are of very rare occurrence, indeed.

It is fortunate for the rural student located far from medical library centers, that the system of organized research has become operative in a commercial way for our own convenience in assembling information. Appeal was therefore made to Dean Lewis' publishers, W. F. Prior & Co., who very graciously provided a record of three cases of solitary calcified cyst of the kidney. One of these was reported by Dr. W. W. Townsend of Burlington, Vermont, in 1923; one by Dr. J. T. Case, Battle Creek, Michigan, reported before the Chicago Roentgen Society, March 13, 1914; and one by J. C. Ainsworth-Davis of the urological department of the Royal Waterloo Hospital.

In my discussion of the information gained in my study of this case, I feel that it will unnecessarily burden you to attempt a complete review of all literature on the subject and to give minute credit to each author where it justly belongs. Rather I shall content myself with only a brief summary of the more material points of interest as they appeal to me.

\*Read before the Oklahoma State Medical Association Annual Meeting, Surgical Section, Oklahoma City, May 12, 1931.

There is no unity of opinion as to the origin of such solitary cysts. Caulk, in 1912, after an exhaustive study of available cases came to the firm conclusion that these cysts were not all congenital as at first thought, but that a great majority belong to the class of retention cysts. It seems to me that W. J. Carson gave the most acceptable summary of causation in a paper published in the Annals of Surgery in 1928, as follows: (1) Cysts due to embryonic rests; (2) Cysts due to a failure of union between glomeruli and the connecting tubules; and (3) other retention cysts due to constriction of tubules by fibrous tissue the result of a localized inflammatory process, or to a blocking of the glomeruli or tubules by any degenerative or pathological changes favored possibly by small hemorrhage.

The development period of these cysts, like other forms of retention cysts, probably extends over a period of many years without any specific symptoms that would surely lead to a correct pre-operative diagnosis. Likewise the calcification of a solitary cyst is likely also a slow and obscure process, probably dependant upon other pathology than that of the origin of the cyst itself.

Nothing concerning calcification *per se* has been said in the literature, in so far as I can determine and your deductions and suggestions will be welcome in the discussion in my case.

The calcification has taken on different forms, simple calculi varying greatly in size, being more often reported. Dr. Kretschmer did not discuss calcification in his paper. Dr. Case's report to the Chicago Roentgen Society, like mine, showed a thin shell filled with fluid, the shell being about as thick as that of a goose egg. The calculus in the case from the Royal Waterloo Hospital was found in the pelvis of the kidney and seemed independent of the cyst itself. The cyst was not calcified.

#### MY CASE REPORT

Mrs. L., was brought to the Shawnee Hospital, January 18, 1931, because of an acute exacerbation of cholecystitis with gall stones. About six weeks ago, she had a severe gall stone colic lasting several days, during which time she became very jaundiced. After twelve or fifteen days, this jaundice gradually subsided and she was in very good general condition except a fullness and soreness in the right upper

quadrant. Two days ago, the colic returned and she came in for operation before she again became jaundiced.

Her past history was negative except that she has been the mother of nine healthy children, the youngest fifteen. Her labors were always uncomplicated. During the past seven or eight years she has had several attacks of gall stone colic but never before had she been jaundiced, and she had been told she had chronic appendicitis, but she always associated this pain with the gall bladder and kidney.

About thirty or more years ago, she recalls having some trouble with her right kidney which was diagnosed as pyelitis and calculi. She had recurring attacks for about five years. For the past twenty years she has noticed a movable mass in the lower segment of the right upper quadrant. It has never been painful or tender. She was told it was a floating kidney.

Our examination showed a well preserved rather corpulent woman of 59 years of age. The skin looked somewhat dehydrated and jaundice showing plainly in the sclerae. All the laboratory and physical findings were positive for cholecystitis, the ovoid mass seeming as large as a pear. The urine was normal except for the bile pigment and a moderate number of pus cells. In addition to the gall bladder findings, there was a movable non-tender tumor the size of a grape fruit in the right abdomen about midway between the umbilicus and the right renal region. The mobility was not as extensive as some floating kidneys I have seen but I accepted it as a floating kidney and of no consequence in her present disability, since the gall bladder was rather urgent. She understood that the operation for the kidney would or could be done at another time if it became necessary.

She was operated, January 19th, under combined local and ether anesthesia through a high right rectus incision. A very large empyemic gall bladder with a single large stone was examined and packed off for the present. A chronic appendix with many adhesions was removed.

The kidney tumor became very prominent in the field and looked like a very large cyst filled with clear fluid and many calculi. The kidney itself was greatly distorted by the cyst and appeared to be a non-functioning organ. We changed our plan since it seemed feasible to do the

kidney at this time. The peritoneal covering was divided and the cyst punctured. What had appeared to be calculi was an egg-shell like calcification of the lining of the cyst and this egg-shell broke into many pieces but still adhered to the cyst lining. Attempt was made to separate the cyst from the kidney structures but the hemorrhage was too great and a nephrectomy was done. A small wick was placed in the space and the peritoneum closed about it. We then returned to the gall bladder doing a cholecystotomy only. The laboratory report showed the remaining part of the kidney was in function and that there was a pyelitis present in the distorted pelvis.

She came out of the operation without shock. The pus cells immediately disappeared from the urine and kidney function was soon normal. She had an uneventful convalescence and is now in unusual good health.

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**DISCUSSION: Dr. A. L. Blesh, Oklahoma City:**

Cystic kidneys are interesting from the standpoint of the so-called polycystic kidneys, the condition being usually congenital. This is not so true in the solitary cyst of the kidney, as this condition is more often acquired. The solitary cyst is usually unilateral, and the polycystic kidney is always bilateral. We have had several of the polycystic types. This condition is usually demonstrable before operation and I might say that all of our cases have been diagnosed as polycystic kidneys. When we have had no renal workout on the patient, do find a cystic kidney on one side and the patient is on the operating table, it makes us feel somewhat nervous. We can as a rule tell whether the kidney is out of commission. The margin and threshhold in these cases are narrow.

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**DISCUSSION: Dr. John Z. Mraz, Oklahoma City:**

I wish to report a case which is extremely rare. However it is not one that contained any calcification. The patient came to the Oklahoma City Clinic and we saw the patient first with Dr. W. J. Wallace, and the physical findings all seemed to point to a gall bladder condition rather than a kidney lesion. There were no kidney symptoms whatever. The patient came to us for operation and the findings consisted of a mass which was painless, fairly movable in the right abdomen which could be traced up under the ribs, could

not be displaced up into the kidney fossa. We thought it was a large gall bladder, and Dr. A. L. Blesh, operated the case. We found a retroperitoneal mass which was a large solitary cyst of the right kidney. The patient made a good recovery. The urine was negative in this case, and I think the interesting part of these cases, is the question of diagnosis. As a general thing if we suspect a kidney condition, a urinary workout including a pyelogram will usually at least, give us the clue to a kidney tumor. I see by literature, that some men have practiced removing the cyst and doing a partial resection, saving a part of the kidney. This may be attempted when the cyst is limited to one pole of the kidney.

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**Dr. J. M. Byrum: Closing Discussion:**

Mayos are doing a partial resection and have reported a number of cases in 1928, in which they did partial resection. Their mortality rate was rather high. The polycystic kidney is prenatal in origin. Cysts such as I described in my paper seem to come on in later life.

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**VIRGINIA'S GOVERNOR AND THE PUBLIC HEALTH**

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Immediately following the death of Dr. Ennion G. Williams, who was the first and only state health commissioner of Virginia and who served continuously from July, 1907, until the time of his death, June 6, 1931, Governor John Garland Pollard of that state, with the unanimous recommendation of the state board of health, requested the United States Public Health Service to detail Dr. Warren Fales Draper to serve as state health commissioner until a permanent successor is selected. Governor Pollard deserves for this unusual action the congratulations and commendation of every physician and public health official in this country. He has recognized the truth of the statement made by Disraeli that the preservation of the public health is the first duty of the state. He has risen above political considerations, in taking this action solely to insure the continuity of properly qualified public health leadership in Virginia. Those who know the difficulty of securing public health officials in this country at the meager salaries offered and with the lack of any guarantee of continuity of service will the better appreciate the significance of the action taken in Virginia. Apparently, the state board of health and the governor realized that time will be required to secure a permanent health officer with the proper public health and educational qualifications. It is also significant that the governor of Virginia was supported by leaders both in the practice of medicine and in the field of public health. The press of the state has been enthusiastic in its endorsement. The governors of other states, the mayors of cities, and county boards employing full time health officials may well be inspired by this action—Jour. A. M. A., Aug. 1, 1931.

# THE JOURNAL

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
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DR. P. P. NESBITT.....Associate Editor  
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Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

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### EDITORIAL

#### ANESTHESIA, PROBLEMS AS TO CHOICE

Considering the unanimity of opinion as to many medical and surgical procedures, it is remarkable, to have to note the various opinions as to the type of anesthetic to be used in the ordinary case. It goes without saying that any operation, as well as any type of anesthetic, is extremely dangerous in some cases, fortunately they are rareties. It should not be forgotten either that sudden deaths or deaths shortly after operations, often charged to the type of anesthetic used, are so charged

merely because an anesthetic was used, overlooking the fact that there are other factors, possibly not even discoverable at autopsy, which may have been solely responsible, rather than the anesthetic.

Looking back over many years, recalling the carelessness, lack of preliminary laboratory and other examinations, and general disregard given the most important aspect of the entire procedure—that is, a close preliminary check-up to discover, if possible, latent idiosyncrasies and defects in the patient, which obviously render him a poor surgical (that is anesthetic) risk, chloroform has had a long and honorable career. It is certain in some type of patient that chloroform is less given to days of mean after-effects, nausea, etc. In this connection it is a scientific curiosity, at least, to hear that the operation of simple rib resection for empyema, not so long ago performed upon the King of England, was performed under chloroform anesthesia. Had that happened, even at the hands of a raw intern in any hospital in the United States, that intern would instantly and from then on had a very hard time of it. But culling the pages of experience from more than a quarter of a century of the past, the writer cannot recall a single fatality due to chloroform. And for years, in the beginning of my professional work, chloroform, was the only anesthetic thought of, the next improvement over that being cocaine as a local anesthetic. However, please do not misunderstand this to be a brief favoring a return to chloroform. Ether has had coined for itself the slogan "Fool-proof anesthetic," and it seems to be so until one suddenly encounters severe collapse of the lung immediately or shortly after its use, upon which one looks askance at ether, resolves to hereafter stick to local or intraspinal means, only to have the same thing occur. For this reason Yandell Henderson proposes the use of, not only after ether, but after all operations, inhalations of from 7% to 10% carbon dioxide. This is probably all good and well, but, so far, no one has offered a particular panacea preventive of cripplment of the liver to a more or less degree, nor to the prevention of severe tracheitis, bronchitis and sometimes pneumonia, unless the Henderson procedure will tend to lessen and eliminate them. With these situations in mind one naturally turns to local and intraspinal means as evasive of the troubles. But, instantly, these, along with sodium amyta-

and evertin, rouse a greater number of critics than ever. After probably using novocain locally in several thousand cases, I can only recall one case with a reaction, which was probably (may have been) due to novocain toxicity, if there is such a thing as toxicity from the use of that drug. The reaction was severe, maintainence of circulation was difficult, the pulse fluctuating from weak to very poor for nearly three days. Probably intravenous saline therapy helped him through the trouble, more than any other of the many agencies suggested and used. As to intraspinal anesthesia, so far it has shown 100% perfection. Of several hundreds of cases not one has caused any particular alarm to myself or several associated operators. However, knowing and recalling the so-called "perfections" of the past in this as well as other medical and surgical matters, I cannot help but wonder when a fatality, or near one, will occur.

C. Schroeder<sup>1</sup> places mortality from ether (Gauss Clinic, Wurzburg,) at 1 in 5112 cases: from "narcylin" (ethylene) at 1 in 4200, but states if three deaths due to explosions are deducted, the death rate would be only one in nine thousand; formidable showing for that type of anesthetic. He places the rate from spinal analgesia as one in 550, higher than my own personal experience, and, strange to say, one in 1150 from sacral anesthesia—this latter almost unbelievable as a cause of death in any manner, if proper technique is followed. Evarts A. Graham<sup>1</sup> flatly states that "evertin is a dangerous anesthetic substance. Because of its similarity in chemical structure to chloroform, it will probably be found to produce the same sort of late toxic effects in the liver, and other organs." G. Babini<sup>1</sup> in one thousand cases of spinal analgesia had one death in a very poor risk for any type of anesthesia. Lundy<sup>1</sup> reports one thousand cases in man and animals, where sodium amytal intravenously was used, without stating his mortality rate, if any, and concludes it is freer from the severe postoperative complications than other types, but admits it demands closer postoperative care of the patient for a short time than others.

So far as the writer is concerned, of all anesthetic, local (novocain) and intraspinal, either used as novocain crystals or in the form of "spinoceain," calls for less observation, less nursing and is followed

by fewer complications than any of the other types in use today.

1. The Year Book, Chicago, 1930.

## AN AID IN TIME OF TROUBLE

For years the writer has noted the meagre, or entirely absent, but highly necessary case-record or report. I have noted that the busier or more competent and successful men take time to take the necessary notes, which, when accumulated in proper order, make up a record which may become of great value in the future, in that given case. Certainly, a physician called into court, or asked for the previous record up to date by consultants, must feel some chagrin and sense of lapse of duty, when he must admit that he took no written history or record, and that all he can discuss with reference to a case is solely from memory. Having few or many cases, the physician would do well, and certainly always prepared, as far as possible, were he to follow the suggestions of the American College of Surgeons with reference to the "Minimum Parts of a Case Record," which consist of the following sub-divisions:

Identification data.  
Complaint.  
Present illness.  
Past history.  
Family history.  
Physical examination.  
Special examinations (if any necessary).

Provisional diagnosis.  
Treatment, medical or surgical.  
Pathologist's Report.  
Final Diagnosis.  
Progress notes.  
Condition on discharge.

Follow-up records, if obtainable, and, finally, autopsy findings, if such are obtainable.

In this connection the writer would add one suggestion, not only born of his long personal experiences, but greatly bolstered by certain facts and happenings connected with various suits alleging malpractice, and that suggestion is this:

In every case where a certain line of treatment is advised, where certain X-ray or laboratory examinations are requested, but refused or denied for various, or no reason at all, the attendant should place these demands as, in his opinion, neces-

sities, in writing, in triplicate, sign and hand one to the patient or next responsible person, adding the duplicates to the history already obtained. These may become very potent aids in time of future, and, as a rule, unexpected and unwarranted attack. As a rule, when operation is advised, but refused, the person refusing should be held accountable for possible future bad results.

### DANGERS OF "ANTI-FREEZE" MIXTURES

Repeatedly, in thousands of sheets of propaganda, the dangers of wood alcohol, in any and all forms, insofar as it may be used for beverage purposes, have been pointed out in warnings from organizations and nationally known authorities. However, lately, one form, and not covered or controlled by either local or state laws or regulation, has been placed on the market with all the attendant dangers of wood alcohol, and which carries the added danger that it is not detectible by the objectionable odors of ordinary wood alcohol; this preparation is methanol or wood alcohol methanol. Its great danger lies in the fact that it vaporizes at a lower temperature than the water in which it is placed. Aside from the obvious dangers incident to its illegitimate use as a beverage to take the place of grain alcohol it is extremely dangerous through inhalation of fumes, thus adding to the ever present dangers of inhalation of exhaust gasses from running motors in tightly closed garages. It produces death or blindness through inhalation toxic effects by absorption through the skin, and is an accumulative poison, for which there is no known antidote.

At this season of the year it seems timely to call attention of Oklahomans to this, another danger of existence in a modern age.

### Editorial Notes—Personal and General

DR. CLAUDE A. THOMPSON, Muskogee, has been confined to his bed on account of illness.

NOWATA AND WASHINGTON County Medical Societies met, October 12th, at Bartlesville.

DR. WALTER HARDY, Ardmore, attended the clinical congress of the American College of Surgeons in New York, in October.

SEMINOLE COUNTY MEDICAL SOCIETY held its regular session October 15th at Seminole. Dr. Ray M. Balyeat, Oklahoma City, was the principal speaker of the evening.

LINCOLN COUNTY MEDICAL SOCIETY met October 7th at Chandler. Doctors Horace Reed and L. J. Moorman, Oklahoma City were the principal speakers of the evening.

DR. J. E. CHILDEERS, Tipton, Oklahoma, advises that he has been victimized by a confidence man, and that the man is working the various parts of the South, as far east as Georgia. His practice is to obtain treatment from a physician, giving a bogus check for more than the bill calls for, receiving the balance in cash from the physician, and then disappearing. The man is apparently familiar with people in Milledgeville, Georgia, as various inquiries from different physicians have come to that place about him. His description is: about 60 years of age, gray hair, clean shaven, height about five feet ten or eleven, weight about 190 pounds, and walks with a slight limp, because of a callus on the sole of his foot, for which he secures relief. At times he victimizes the doctor outright, by inducing him to cash a bogus check.

### THE AMERICAN COLLEGE OF PHYSICIANS

The Sixteenth Annual Clinical Session of the American College of Physicians will be held in San Francisco, California, April 4-8, 1932. The headquarters in San Francisco will be the Palace Hotel, where the general scientific sessions, registration, and exhibits will be held. Clinics will be conducted in various hospitals and institutions in San Francisco and near-by communities.

Dr. S. Marx White, Minneapolis, President of the College, has in charge the selection of speakers and subjects on the general program, while Dr. William J. Kerr, San Francisco, Professor of Medicine at the University of California Medical School, is the General Chairman of the Session, and is responsible for all local arrangements, in addition to the arrangement of programs and demonstrations. Following the San Francisco Session a post-convention tour will be conducted through Yosemite Valley, Southern California, (with two days in Los Angeles) and the Grand Canyon of Arizona.

The attention of the secretaries of various societies is called to the above dates, in the hope that their societies will select non-conflicting dates for their 1932 meetings.

### DR. ALFRED GRIFFITH

Saturday morning about 2 o'clock, one of the grandest old men of the medical profession of Oklahoma passed away at the home of his daughter, Mrs. J. E. Johnson of McAlester. Dr. Griffith served as a medical cadet during the Civil War and was one of the three surviving members of the G. A. R. in Pittsburg County. In 1866, he graduated from the University of Maryland.

He was commissioned as Assistant Surgeon in the United States Navy by Andrew Johnson in 1867, and served in this capacity for 10 years. Fifty years ago he came to Indian Territory and since 1892, has been a resident of McAlester. Dr. Griffith was a member of the Choctaw Board of Medical Examiners for many years. He was a member of All Saints Episcopal Church, having been a senior member of the vestry for many years. He was a past master of South McAlester No. 96 A. F. & A. M., 33rd degree Scottish Rite Mason, and many years served as secretary of the Blue Lodge.

In his passing the medical profession of this state loses one of the most gentle, sincere and devoted members of the profession.

He was born March 27th, 1844, in Maryland, and died October 10th, 1931.

## DERMATOLOGY AND SYPHILIOLOGY

Edited by James Stevenson, M.D.  
615 Medical Arts Building, Tulsa

**The Prophylaxis of Ringworm of the Feet.** Osborne, E. D., and Hitchcock, Blanche S. *Journ. A. M. A.* 97:453 (Aug. 15, 1931).

This condition has become increasingly common due to the popularity of sports requiring common shower baths, and dressing rooms. The fungi causing the disease are readily killed in test-tube experiments by a number of common antiseptics, but in treating afflicted human subjects in whom the fungi are present deep in the stratum corneum, these same antiseptics are relatively inefficient, due to the impenetrability of the horny layer of the skin. The authors, in test-tube experiments found sodium hypochlorite to be fungicidal in 5 per cent aqueous solution. Because of its cheapness, its failure to irritate or stain the skin, they suggest its use as a prophylactic measure. The method of having pupils in the Buffalo High schools immerse their feet in this solution, is illustrated in the article. The authors state that a marked drop in the incidence of the disease has been noted in Buffalo since prophylaxis has been practiced.

**The Antisyphilitic Action of the Malarial Parasite in Other than Central Nervous System Syphilis.** Dennie, C. C., Gilkey, H. M. and Pakula, S. F., *Am. Journ. of Syph.*, 15:320 (July, 1931).

The authors comment on the excellent results obtained in treating paresis by malarial inoculation, and commenced their work with the belief that the malarial parasite should also have a curative effect upon syphilitic processes in the bone, skin, eye, and vascular system. In explaining the mechanism of malarial therapy they disagree with those who believe that hyperpyrexia should be given the credit for the beneficial results. They believe with Bahr and Breutsch that

stimulation of the reticulo-endothelial system is produced by malarial treatment, that many phagocytic cells are formed, which destroy not only malarial organisms, but spirocheta pallida as well and that the elevation of temperature is only an activating factor.

Several case reports, accompanied by excellent photographs, are given, in which malarial therapy was used. The authors summarize their results as follows:

In early acute interstitial keratitis malarial therapy caused rapid disappearance of subjective symptoms and rapid clearing of the corneal haziness.

In hyperplastic bone syphilis the superimposed bone disappeared quickly. In cases of periarticular infiltration of the knee joint the hyperplastic tissue disappeared and function restored.

In resistant malignant skin syphilis in which all other methods had failed, recovery ensued, although in two cases a slow recurrence of the skin manifestations appeared a few weeks after treatment.

The authors do not believe malaria cures syphilis, but that it raises the natural immunity forces of the body against the disease, and that therefore it should be used in all cases of refractory syphilis whether they are affected with the somatic or central nervous system type of the disease or not.

**Tryparsamide Therapy.** Lichtenstein, J. V. *Arch. Dermat. and Syph.* 24:182 (August, 1931).

The author gives a report of the results obtained in seventy-six patients treated with tryparsamide since 1925, none of whom have received any subsequent treatment for from one to three years. The cases were largely paretics and tabetics. The group as a whole showed marked improvement in 49.8 per cent; no improvement in 22 per cent of cases and improvement in 28 per cent. The result would indicate that tryparsamide should be used oftener in neurosyphilis, than is the case today.

## BOOK REVIEWS

**Gonorrhea In The Male and Female:** By Percy S. Pelouze, M.D., Associate in Urology and Assistant Genito-Urinary Surgeon at the University of Pennsylvania; Fellow of the Philadelphia College of Physicians, Philadelphia, Pa. Second Edition, Revised. 440 pages with 92 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, \$5.50 net.

The first edition of "Gonococcal Urethritis in The Male," by Pelouze, was extremely well received, and justly so, for it stands today as one of the most practical and helpful monograms written by any United States authority upon the subject. This edition goes farther in including the problems of some of the most intractable undertakings with which the physician has to cope. The author rightly points out that, as a rule, the rank and file of the profession are too prone to either disregard, or regard superficially the potentialities of this infection, both in the male as well as the female, but he most emphatically

warns of the danger of neglected gonococcal infection in the female, and the grave ends to which the infection often reaches.

If for nothing else the work is to be commended upon what might be termed condemnation of "Traumatic Treatment of Gonococcal Infections." He is too polite to use that expression, nevertheless the condemnation is there, is well placed, too often seen, and may only be avoided by treating this type of infection in a gentle and common-sense manner.

**Simple Lessons in Human Anatomy.** By B. C. H. Harvey, M.D., Professor of Anatomy, University of Chicago. Cloth, Illustrated, 434 pages, Price \$2.00. Published by The American Medical Association, Chicago, 1931. This work was prepared by request of the American Medical Association in order to give those interested in health the truths of anatomy in an available and assimilable form. The writer has accomplished his purpose in an admirable manner. The text follows closely other and prior articles which have appeared from time to time in *Hygeia*.

**Surgical Pathology of the Diseases of Bones.** By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, Professor of Surgery, University of Kansas. Cloth, 272 pages, illustrated, 1931. J. B. Lippincott Company, Publishers, Philadelphia.

Professor Hertzler states that to his knowledge, no book has been written, which deals in a comprehensive manner with the pathology of the diseases of the bones. This preface is entirely unnecessary, for all his writing upon surgical and medical subjects are from the pen of an authority and from the mind of a judicial, fair-minded surgeon with years of clinical experience to prompt his offerings. This work is well illustrated, contains fifteen chapters, which have fifty-four subdivisions. Among those most interesting to the general practitioner are those due to specific infections, viz: typhoid, pneumonia, tuberculosis, gonorrhoea, syphilis, actinomycosis, coccidioidal granuloma and blastomycosis. Those of unknown origin include, Legg-Perthes' Disease, Koehler's Disease, Osgood-Schlatters' Disease, Larsen-Johanssons' Disease, Coxa Vara, Osteo-arthritis protrusion of the acetabulum and other rare diseases involving bones. Many other subjects are included, but the above is sufficient to give an idea of the scope of the work. It deserves critical study by the physician.

**Gynecology and Urology for Nurses.** By Samuel S. Rosenfeld, M.D., F.A.C.S., Assistant Obstetrician and Gynecologist, Lebanon Hospital, New York City; Lecturer in Obstetrics and Gynecology to Lebanon Hospital School for Nurses; Diplomat of the American Board of Obstetrics and Gynecology. Cloth, illustrated, 230 pages. Price \$2.00, 1931. Wm. Wood and Company, 156 Fifth Avenue, New York.

The author of this volume attempts to emphasize the training of nurses so that they may aid and carry out the highly technical instructions of two very highly specialized branches of medicine, surgery and urology. These subjects are not usually joined in any volume, but the work is so correlative that it is necessary for the man specializing in these subjects to have as aides those who are able to intelligently follow out the technique necessary to successfully carry out his ideas and instructions. The book is well illustrated and should be helpful to the nurse engaged in such work.

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## REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, September 8th and 9th, 1931.  
The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Holler, Carl August Fritz	1898	Van Horne, Ia.	Northwestern	1922	Boise City, Okla.
McAdams, William P.	1886	Scottsboro, Ala.	Memphis Hosp. M.	1912	Aline, Okla.
Moffitt, John Alfred	1896	Chatanooga, Tenn.	Univ. Louisville	1921	Oklahoma City, Okla.
Ruprecht, Homer Albert	1903	Lakewood, Ohio	Western Reserve	1928	Tulsa, Okla.
Smith, Charles Andrew	1901	Newark, Texas	Baylor Med.	1930	Oklahoma City, Okla.
Wilbourn, Champion Ellis	1862	Haynesville, La.	Ga. Ecl. M. & S.	1899	Loco, Okla.
Horner, Charles Perry	1873	El Paso, Ill.	Northwestern	1899	Enid, Okla.
Wilson, Clafford Charles	1901	Hatton, Ark.	Univ. Louisville	1930	Bartlesville, Okla.
McBain, Louis Bernard	1905	Gr'd R'p'ds, Mch.	Univ. Wisconsin	1930	Oklahoma City, Okla.
Smith, Roy L.	1902	Missouri	Univ. Tenn.	1931	Tulsa, Okla.

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# THE JOURNAL

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**THE TREATMENT OF PNEUMONIA  
WITH SPECIAL REFERENCE TO  
GLUCOSE THERAPY AND THEO-  
RIES AS TO IT'S PROBABLE AC-  
TION.**

**E. ELDON BAUM, M.D.  
TULSA**

When a man of the ability of Sir William Osler shows his respects to the dread disease of pneumonia, by honoring it with the sobriquet, "Captain of the Men of Death," it would be absurd for the author of this paper to come before you as a prophet from a strange land with a new and absolute panacea for this disease. On the contrary, this paper is presented with the author fully aware of all of the dangers of drawing final conclusions, making any superlative statements, or championing any one therapeutic measure to the exclusion of all others for a disease so deadly in its effect upon its victims. Since the time of Galen and Hippocrates, this disease has attracted the attention of the medical profession with scarcely any appreciable decrease in the mortality rate, until recently, when it appears as though a step toward its abolition has been made in the right direction. The major portion of this paper will deal with glucose in the treatment of pneumonia as a result of some outstanding results obtained by the author, but who knows, that this method of treatment may be destined to the same iniquitous death as many of the myriads of other forms of therapy that have been advocated since time immemorial.

**DIGITALIS THERAPY**

To many of us, this drug has been like the spar to the ship wrecked voyager, but Bethea of New Orleans<sup>1</sup>, in a recent article specifically interdicts the use of this drug in his routine unless auricular fibrillation or flutter occurs. He prefers to use large doses of sodium citrate, forty grains every two hours, to be discontinued if evidence of pulmonary edema appears, and when stimulation is necessary, he recommends the use of aromatic spirits of ammonia. Recent investigations conducted at Cor-

nell University, Columbia University and Bellevue Hospitals under the able leadership of John Wycoff and others<sup>2</sup> with carefully established controls, it has been rather conclusively proven that the routine administration of digitalis, as soon as, the diagnosis of pneumonia is made, is not only of no value, but even dangerous, since, in their series of cases the mortality rate was actually increased. Norris-Landis<sup>3</sup> in their new book call attention to Gibson's rule for the administration of this drug in pneumonia, which is probably more logical. For those of us who may have forgotten this rule, it follows: "When the blood pressure expressed in millimeters, does not fall below the pulse rate expressed in beats per minute, the patient is in no immediate danger, but when the ratio becomes reversed, it is the signal for stimulation. In a case which the author recently treated with glucose, and will be presented further on with some detail, the pulse rate exceeded the blood pressure expressed in millimeters from the onset of his pneumonic symptoms. Furthermore, he developed a definite auricular fibrillation, a systolic murmur at the apex transmitted to the axilla, which disappeared as his blood pressure declined, his pulse weakened, and his pulse pressure widened. Digitalis per mouth had already been started, but the necessity for rapid digitalization in such a clinical picture was paramount. With such a definite picture of cardiac decompensation, one might logically question the absorptive power of his gastro-intestinal tract due to the passive congestion coincident with his impaired circulation. Consequently, it was decided among the consultants to administer the drug hypodermically in the form of "digifoline." Within the next forty-eight hours, a total of sixteen, one and one-half c.c. ampules were given with only large painful areas of induration and ecchymosis remaining as the sole evidence of its administration since no pharmacological or physiological effects were ever apparent. After the administration of glucose, his condition improved sufficiently to warrant the resumption of digitalis by

mouth in the form of the standard tincture, with the usual therapeutic effects noted in about twelve hours.

#### SPECIFIC THERAPY

This form of treatment was first introduced in Germany by Neufeld in 1910, and in this country three years later by Cole. So promising is this form of therapy that the importance of early typing of all pneumonia cases, especially those in young adults cannot be overemphasized. A very rapid method of typing has been developed by Sabin<sup>4</sup>. A few statistics will show the apparent value of this form of treatment. Cecil, Baldwin and Larsen have shown type I pneumococcus to be the predominating organism in 246 out of 585 cases of frank lobar pneumonia in patients under thirty years of age, an incidence of 42%. Cecil and Plummer<sup>5</sup> at Bellevue Hospital reported 1,131 cases of type I infections out of 3,662 admissions to that hospital for pneumonia, or a percentage of 30.9%. Cole, in a series of cases, reported an incidence of 33.3% type I infections, while Park, Bullowa, and Rosenbluth, working in their group found type I pneumococcus to be predominant in 28.5% of their cases. When we reflect upon these figures and note the comparatively high percentage of cases that might be saved by the timely use of specific type I anti-serum, the day may be dawning, when pneumonia, like tuberculosis, must surrender its long possessed title of "Captain of the Men of Death," to some other disease. Where specific serum is given early, the mortality rate is markedly reduced and the clinical results outstanding, since convalescence is almost complete within twenty-four hours after beginning treatment. Unfortunately, the incidence of type I infections is much lower in children and older persons. Without discussing the merits of the various types of sera available on the market for the general practitioner, it will suffice here to mention those used in the original investigations, *namely*, immune whole serum, Huntoon's anti-body solution, and Felton's concentrated serum. In a series of cases received at Bellevue and Rockefeller Institute Hospitals, where an equal number of cases with and without serum were selected on the basis of time elapsing since the onset of symptoms and the administration of the serum, the mortality rate with these various preparations was reduced from 28-30% in those not receiving serum to 10.2-11.6% in those receiving serum. This is quite a worthy

decrease. Such an appreciable decrease in mortality is well worth the time and trouble incident to the typing of all pneumonia cases, especially those occurring in young adults.

#### GLUCOSE THERAPY

One of the most outstanding cases, in the author's experience, in which this form of treatment was used, was a young man aged 27, a clerk by occupation, 74½ inches tall, weighing 210 pounds, who was seized suddenly with a severe pain in his right chest while returning to Tulsa from a Christmas visit. This pain was so severe that it incapacitated him to such an extent that his wife was compelled to drive the remaining five miles home. Upon his arrival home, strapping of his chest failed to relieve the pain, necessitating the administration of narcotics in large doses, before any decline in his pain was noticed. Because of his history and physical findings, it appeared to be a case of a severe acute pleurisy with an impending pneumonia. Two days later the patient developed all of the classical symptoms of pneumonia with a profound toxemia, obstinate singultus, and rapid cardiac decompensation. On the morning of December 28th, consultation was had and the patient sent in to the hospital, where he continued to become progressively worse in spite of all efforts to relieve him.

In presenting this form of therapy, credit is due to Beckman's Treatment in General Practice, published by W. B. Saunders Co., for the suggestion regarding the brilliant results obtained with glucose in the treatment of pneumonia. This patient was in extremis by 2:30 A. M., December 29th, 1930, just four days after his initial symptoms, and the timely administration of ½ c.c. of adrenalin revived him sufficiently so that it was possible to begin the administration of glucose intravenously as a last resort. It would have been much better, perhaps, to have used glucose as a first resort, but because of his extremely weakened cardiac condition, the advisability of adding any additional burden in the form of intravenous therapy appeared very hazardous. Up to this point the pulse record as shown on the nurse's chart was either blank, because the pulse was not palpable, or, when faintly palpable was invariably followed by a question mark. After the second injection of glucose the pulse record reappeared without question marks. All of these changes appeared

within six hours after beginning treatment. It was also unnecessary to continue the administration of oxygen for the profound cyanosis that persisted up until the administration of glucose. Within thirty-six hours the patient was hungry and requested more food. The singultus and meteorism continued to be serious and very troublesome complications. However, the former was satisfactorily controlled with Hoffman's anodyne and chloroform, while the latter was minimized to some extent by hot stupes, colon tube, enemata and pituitrin. Digitalis cannot be credited with these results, since the usual pharmacological effects of digitalis did not manifest themselves until some twelve hours later after the oral administration of the standard tincture was resumed.

In all probability, it would be disastrous to give such a patient glucose solution in any large quantity. The problem then, is how to give a therapeutic amount without taxing a heart muscle already overburdened by blood volume, and devitalized by starvation, anoxemia and toxemia. The solution to the problem appears in the administration of small quantities of concentrated solution at frequent intervals. As an initial dose, fifty c.c. of a twenty-five percent solution is given with a large syringe and a twenty-two gauge intravenous needle, taking fully thirty minutes by watch to administer. It may seem far fetched and arouse some skepticism to say that the results are immediately manifest by improvement in the cyanosis, heart action, respiration, pulse quality and the general appearance of the patient, but such is usually the case. This procedure is repeated at approximately four hour intervals during the next four or five days and nights, gradually increasing the amount and dilution until the patient is getting 200 c.c. of a twelve and one-half percent solution at four hour intervals. At the latter dilution it is possible to give the solution by gravity with an ordinary infusion flask, which is not the case with the more concentrated solutions since the viscosity is too great to flow freely by gravity. No doubt, the question of damage to the venous wall by these concentrated solutions has arisen, and truly enough, the sclerosis at the site of each injection is quite a troublesome problem making it necessary to find a new site of injection each time.

#### THEORIES EXPLAINING THE PROBABLE MODE OF ACTION OF GLUCOSE

Before attempting to explain the probable or possible modus operandi of this modality, let it be understood that all statements are purely theoretical. The beneficial results obtained from glucose post-operatively and in the convulsions of eclampsia are common knowledge. Kisthimios and Gomez<sup>6</sup>, in a recent article, have called attention to the beneficial results obtained from glucose and digitalis in the treatment of cardiac insufficiency. Physiologically, the muscle tissues including heart muscle and the liver have the power of readily converting glucose to glycogen and glycogen to glucose depending upon the bodily needs. Glucose is already partially oxidized and readily assimilable, but must be first converted to glycogen before it can be utilized by the tissues. In this process of furnishing energy for various decompositions and bodily activities, it is reduced to alcohol, carbon dioxide, fatty acids and water. It has also been conclusively shown that tissues deprived of oxygen live much longer when supplied with glucose<sup>7</sup>. In a patient suffering with pneumonia, having much of the lung aerating space completely filled with exudate, a blood stream overwhelmed with toxic products, thus interfering with its oxygen combining power, a sluggish heart probably starved by the lack of glycogen and oxygen, possibly glucose offers to the tissues that stimulus necessary to tide them over the crisis and lack of oxygen.

In health, it is possible for the animal body to synthesize glycogen from carbohydrates, proteins, and to a slight degree from fats. It is also possible for the animal organism to synthesize glycogen from various amino acids as glycocoll, alanine, aspartic acid, glutamic acid and tyrosine. This synthesis is, at least, in part, performed by the liver after the deaminization of the amino acids in the intestinal wall before being carried to the liver in the portal circulation. Here again, oxygen is a prerequisite for this transformation. It is logical to assume, that because of the anoxemia of pneumonia, the stored glycogen is soon depleted and unable to be replenished by the liver and muscle tissues. Another possible assumption is that, the liver, in endeavoring to free the organism of toxemia, puts its function of detoxification to the fore at the expense of its glyco-genic function. Koster<sup>8</sup> and others have

shown that the administration of glucose causes marked changes in the Kupfer cells of the liver and attribute the beneficial results from glucose to the stimulation of the reticulo-endothelial system.

Anorexia is also an important factor in pneumonia. Voit<sup>1</sup> has shown that by starving hens and rabbits for five days, he was able to reduce the glycogen stores to a minimum. After feeding glucose, he found 15.34% and 16.85% glycogen in the liver, which was a much higher percentage than when levulose, lactose, galactose, sucrose or maltose were given. In the rabbit which received 50 grams, he found 9.269 grams of glycogen in the liver, and 8.972 grams in the remainder of the entire body, thus showing the importance of the liver as a store house for glycogen. This opens the way for the theory that the liver, possibly, not only acts as a storage space for glycogen, but this polysaccharide is a prerequisite to its function as a detoxicating organ.

The anorexia of pneumonia may be nature's subtle way of informing the patient that his gastro-intestinal tract is water logged by passive congestion and unable to absorb any food. Because glucose is probably next to alcohol in being the most readily assimilable food, requiring less metabolic effort to convert it into useful tissue substances, therefore, can we not assume that a toxic organism, unable to utilize more complex molecules readily, through a poorly functioning gastro-intestinal tract, easily appropriates intravenous glucose to satisfy the bodily needs?

Let us now consider the heart. Matthews has shown that the dog's heart, in health, contains .709 and .576% glycogen, while the skeletal muscle contains .15-.3% glycogen. From these figures, it appears that the heart is a great user, as well as, a great store house for glycogen, second in importance to the liver. Norris-Landis claim that the capillary beds between the exudate filled alveoli are not occluded in pneumonia, unless a megalocyte, too large to pass through the lumen, becomes lodged, thus acting as a thrombus. If this be true, the probability is that the heart does not fail as a result of the back pressure offered by the massively consolidated lung. In the face of this assumption, it may be more logical to assume that the heart fails as a result of the lack of oxygen and glycogen.

The clearing of the cyanosis might be

easily explained on the basis of the liberation of carbon dioxide in the metabolism of glucose, which act as a stimulus to the respiratory apparatus.

The improvement in the kidney function is probably due to the improvement in the general circulation, or to the improvement in oxidation with better preparation of the metabolic product brought to the kidney for excretion, or it may be due to the increased oxygen supplied to that organ after the administration of glucose. There is a marked improvement in the fluid intake and output, which may play some part in the improvement in the kidney function.

In conclusion it may be well to repeat the importance of early typing of all pneumonia patients, especially those cases occurring in young adults and that the statements made in an effort to explain the possible action of glucose are purely theoretical.

510 Medical Arts Building.

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## SOME OBSERVATIONS ON SPECIFIC THERAPY IN THE INFECTIOUS DISEASES

J. H. MUSSER, M.D.  
NEW ORLEANS

(From the Department of Medicine, Tulane University School of Medicine, and the Charity Hospital, New Orleans).

One of the real advances in medicine which has occurred during the last several decades lies in the rather general utilization of specific sera in the handling of certain acute infections. Undoubtedly, this particular form of treatment, the administration of specific sera, is the greatest contribution to the therapeutics of disease in the last forty years. Truthfully it might be said that the discovery of an antitoxin for diphtheria by Behring represents for all time one of the out-standing gifts of medical science to humanity. Following this discovery, very general interest was aroused in the subject of methods of elaborating in the blood of an animal, antibodies to combat disease in man, but it has been only a comparatively few years that potent sera have become available for the treatment of a few infections. At the present time a specific serum may be obtained for the treatment of meningococcic meningitis, scarlet fever, tetanus, erysipelas, pneumonia, anthrax, cholera, dysentery, botulism, plague and diphtheria. Some of these sera still lack the test of time; a few of them are *sub judice*. Clendening<sup>1</sup> says that of these, three are of positive value, diphtheria antitoxin, anti-meningococcic serum and scarlet fever antitoxin. I would add anti-pneumococcic serum, tetanus antitoxin, and possibly erysipelas and anthrax serum. It is my purpose to very briefly discuss the use of some of these sera as observed in the wards of Charity Hospital in New Orleans and to recount briefly some of the experiences of my colleagues and myself in the treatment of those diseases for which the sera are employed.

### MENINGOCOCCIC MENINGITIS

The steadily growing literature on the treatment of meningococcic meningitis by serum and particularly serum when given through the cisterna route, indicates definitely the value of this particular animal product. Last year Garrison<sup>2</sup> went into the details of the treatment of this condition and recounted the excellent results he obtained in the Isolation Hospital in St.

Louis. He called attention to the definite lowering of mortality that has taken place as the result of frequently repeated spinal injections, intravenous medication at the onset of the disease and the introduction of serum into the cisterna magna. T. Goldman and A. G. Bowers<sup>3</sup> reported fifty cases in which the anti-meningococcic serum was given by the cisterna route contrasted with forty-eight cases treated by the lumbar puncture method. The patients that received the cisterna puncture method of treatment showed a very much better mortality rate (25.5 per cent) as contrasted with the patients treated by the older method, whose mortality rate was 52.3. These two articles, added to many already written<sup>4</sup>, indicate definitely that cisterna puncture is an extremely valuable adjunct to our present method of treatment. They show that intensive treatment of this disease is followed in a fair proportion of cases by a cure. I should like to stress, however, the fact that it is impossible to make a dogmatic statement when a relatively few cases are treated. The infections are notoriously variable in their severity and in the virulence of their causative organisms at various times. In 65 cases which Watkins and I studied intensively in Charity Hospital, there was a mortality rate of 58 per cent. This rate was excellent considering that it includes 14 fulminating cases who died shortly after admission, as well as patients who were admitted as long as five and six days after the origin of symptoms. We felt that with the method now evoked: using the serum intravenously when patients are first taken sick, followed by lumbar puncture and then cisterna puncture, the two alternating and, depending upon the severity of the case, with two or three taps being performed every 24 hours in the first three days, together with the administering of large quantities of serum, averaging 400 c.c. to each patient, the results had been so satisfactory that the ultimate had just been obtained in the treatment of meningitis. However, employing the same form of treatment last fall, there were 17 consecutive patients who died; and yet we had not varied our technic and the polyvalent serum used apparently was specific, judging from agglutination reactions. The type of meningitis seen this past fall was extremely virulent, so that the mortality rate, if we would consider our last 65 cases, was extremely high—much higher than the 65 preceding cases.

In the group of cases intensively studied, judging as a hospital physician, the mortality rate is distinctly affected by several features. In the first place, the patients who recovered showed an average time of 4.4 days between the development of symptoms and the institution of serum therapy; in those who died it was 7.5 days. Patients who present fulminating symptoms almost invariably die. Parenthetically, I might add that I have observed recently many cases much like the following. Ten days ago there was admitted to the hospital, a boy eight years old who apparently had been entirely well up until noon; he went to the house at that time saying he had just developed a headache; shortly afterwards he started to vomit, became unconscious and was dead six hours later. Returning to the prognosis, we have noticed that patients with hemorrhagic rash on admission almost invariably die. We had only one such patient who recovered in our recent series. We noticed also that the death rate among adults is approximately twice that of children. We observed, furthermore, that the spinal cell count is invariably higher in those extremely ill. In our patients who recovered the count was 9,500 per c. mm. on admission, while it averaged 17,500 in the fatal cases. The leukocyte count gave us no definite information. Watkins<sup>5</sup> was particularly impressed with the prognostic significance of increased spinal sugar. On admission it was noted in practically all of our cases the spinal sugar was extremely low, averaging 5 milligrams per 100 c.c. of spinal fluid. In the patients who recovered there was usually a prompt and sharp increase in the percentage of glucose in spinal fluid, on the average in this series of cases rising to 50 mg. at the time the sixth sugar estimation was made and remaining at or about these figures until the patients were discharged cured. In the fatal instances the sugar content of the spinal fluid remained about 20 mg. per 100 c.c. and only occasionally going above these figures. A drop in spinal sugar gave us a 24-hour notice of the development of relapse or recrudescence before any other signs were present. In several instances it was noted that there was pronounced terminal hyperglycorrhachia, suggesting an irritative lesion on the floor of the fourth ventricle.

#### SCARLET FEVER

I have been very definitely impressed with the value of the use of anti-serum in

the treatment of scarlet fever. The results I have observed have been truly remarkable. In a considerable series of cases I have observed only one who did not respond promptly and satisfactorily to the administration of the therapeutic serum. The cases have been remarkably free from complications and the causative streptococci promptly disappeared from the throat cultures of these sick children. Again I would caution, however, in the making of dogmatic statements concerning the value of the serum when only several hundred patients have been observed. Scarlet fever is a disease which at the present time seems to be remarkably mild and it is quite possible that in one of the virulent waves of the disease which epidemiologists point out take place in the cycle of the infectious diseases, the serum may be found to be inadequate for the treatment of these patients who are suffering from the severe forms of scarlatina. One disagreeable feature of the scarlatina anti-serum is the almost regular appearance of urticaria seven days after its intramuscular injection, a phenomenon which can be adequately controlled by adrenalin, but which has resulted in many physicians abandoning it.

#### ERYSIPelas

There is considerable controversy concerning the value of the serum prepared for the treatment of erysipelas. From the literature and private conversation, it is possible to get readily quite divergent opinions concerning this preparation and its efficacy in the handling of this disease. It is my impression that one of the reasons that treatment of the disease has not been as satisfactory as its sister streptococcal infection, scarlatina, lies in the fact that the serum is not administered as promptly as in this latter disease nor is it given in adequate doses. In our relatively large series of erysipelas cases we are unable to judge accurately of the value of the serum because we have administered it regularly to each individual who came into the infectious ward suffering from this disease, without control cases, but my own impression is that when given in double or triple the doses recommended by the pharmaceutical houses who are making this preparation, the duration of the disease is materially diminished and the severity of the infection is likewise decreased.

#### DIPHTHERIA

The use of diphtheria antitoxin has be-

come more or less standardized. In 1929, 205 patients with diphtheria came into Charity Hospital and last year a somewhat smaller number—183. In the two years there have been two deaths from diphtheria aside from those children suffering with the laryngeal type of the disease. These patients are often admitted *in extremis* and derive practically no benefit from the serum. The nasal and pharyngeal diphtheria cases receive 10,000 units of antitoxin. The laryngeal cases receive double or even triple this amount, half of it being given intramuscularly and half of it intraperitoneally. The diphtheria toxin is combatted successfully even in those patients who have the laryngeal type of diphtheria. We believe they die from mechanical causes rather than from the diphtheria toxemia, but the larger doses of serum are given because, in the first place, the patient is extremely ill and, in the second place, because the larynx is a relatively avascular structure and in order for the antitoxin to get to the infecting organism it must be in higher concentration than in the case of the extremely vascular mucosa of the naso-pharynx. A word of caution in relation to the administration intravenously of diphtheria antitoxin or any biologic protein preparation: I believe it is justifiable only in such cases as meningitis and pneumonia in which the prognosis is bad to start with and in whom the infection is more or less of an overwhelming one.

#### LOBAR PNEUMONIA

One of our Tulane men on the staff of the Charity Hospital, Dr. Campagna, has studied most carefully the past winter, patients with lobar pneumonia, who were treated with Felton's concentrated anti-pneumococcal serum. The results have been excellent. In type I pneumonia there has been a great decrease in the death rate in contrast with former years; in type II pneumonia likewise there has been a material diminution in the death rate, and comparatively little evidence of a specific effect has been noted in type III and type IV infections.

#### TETANUS

In tetanus it is the usual experience in handling this otherwise lethal infection that large doses of the serum administered promptly and early will affect a cure. Temporizing measures will result in the death of the patient, but if prompt recognition is taken of the fact that tetanus

toxin is destroyed by tetanus antitoxin when the patient is not too greatly poisoned, the patient will recover.

#### MISCELLANEOUS CONDITIONS

I have not seen any patients treated with serum effective in plague, in cholera, in botulism nor in dysentery. In several instances of anthrax the anti-serum apparently cured the patient. My experience is too limited to offer any impressions as to the value of serum in the treatment of systemic streptococcal infection.

#### CONVALESCENT SERUM

I have had the opportunity of supplying some of my medical friends at irregular intervals the blood serum of patients convalescing from measles. In dosage of 5-10 c.c. it seems to be capable of preventing the disease. I have never had the chance of seeing it given for curative purposes, merely for prophylaxis.

#### CONCLUSION

I wish to accentuate what I said about the use of serum in tetanus, as being applicable to the treatment of practically all of the diseases for which there are specific sera. Always the dosage of the serum should be large and must be given early in the course of the disease to be effective.

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#### DISCUSSION: Dr. Geo. H. Garrison, Oklahoma City:

I think this is a most complete discussion of infectious diseases. I believe the injection of serum in meningitis more effective at eight-hour intervals than twelve-hour intervals and twelve-hour intervals more effective than twenty-four hour intervals. There is a reason aside from the effect from the serum on organs, that is the effect of the accumulation of spinal fluid in increased cranial pressure as usually results from the injection itself and second to the irritation introduced by the serum—increased irritation of the cells. I believe in drainage of the meningitis cases after the administration of the serum is stopped. Drainage after the spinal fluid is

free and the patient is clinically improved is usually a very effective procedure. I want to say the injection of serum intravenously in diphtheria is a rather hazardous procedure and I do not believe we are justified in giving more than one thousand units in diphtheria intravenously.

DISCUSSION: *Dr. J. J. Hoover, Oklahoma City:*

I just want to ask one question, "What is the best way to prevent the spread of cerebrospinal meningitis?"

*Dr. J. H. Musser, New Orleans, La.: Closing Discussion:*

In the question of the use of ephedrin I differ somewhat. We have never had as good results in the treatment of urticaria with ephedrin as with adrenalin. In regard to the cisterna puncture, I myself, find actually getting into the cisterna, a simple matter compared to going into the spine. You will be surprised to find this far more simple and easy than going into the vein.

Dr. Hoover asked the method of control of the spread of cerebrospinal meningitis.

Epidemic meningitis is periodic and epidemics occur in cycles from five to fifteen years apart. There is a world-wide epidemic of meningitis at the present time. There are thousands and thousands of deaths in Shanghai. The most effective method I know for the prevention of the spread of the disease is absolute quarantine of the person who has the disease, and because it is possible to transmit it by drops of the infection, practically no one should come in contact with the patient except the attendant. People should be kept out of the room as there is a tendency for the organisms to be transmitted to the nasopharynx. These attendants, under all circumstances, should wear masks of gauze when in close contact with the patient and wear seven or eight layers of gauze. The patient should not be liberated from quarantine until a negative smear from the nasopharynx is obtained.

## FUSOSPIROCHAETAL INFECTION OF THE GASTROINTESTINAL TRACT

FRANCIS M. DUFFY, M.A., M.D.  
The Polyclinic, 211 W. Maple St.  
ENID

In a considerable review of the literature I have been unsuccessful in finding much work which notes a fusospirochaetosis associated with peptic ulcer, appendicitis or ulcerative colitis. Davis' states it is not uncommon to find fusiform bacilli and spirochaetes in the intestinal tract about the caecum and appendix, and in some instances may be associated with appendicitis. As for peptic ulcer and acute colitis I have not been able to find any reports in the literature I have examined.

When we speak of a fusospirochaetosis we refer to an infection with which the fusiform bacilli and the spirochaeta of Vincent are associated. These two organisms either seem to live in symbiosis or one is a pleomorphic stage of the other. It is very probable that the two organisms are only different stages of development of the one species. From pathogenic observation we know that the fusiform bacillus is the predominant organism in early and acute conditions, whereas the spirochaete is the prevailing organism in chronic conditions. Again Tunnicliff<sup>2</sup> in making cultures of fusiform bacilli would have results in which she would have practically pure cultures of spirochaetes.

The general opinion is that about 30 to 50% of normal mouths carry these two organisms<sup>3</sup>. Reckford and Baker<sup>4</sup> state that about 1 in 50 normal mouths have these organisms present, whereas 90% of diseased mouths harbor these organisms. However it is an established fact that these organisms are present in practically all ulcerative conditions of the mouth whether it be the gingiva, mucus membranes, or tonsils..

During my last year, 1929, while I was Associate Professor of Bacteriology and Pathology at Creighton University, School of Medicine, I made a bacteriological investigation of the gums and tonsils of seven patients who presented the symptoms and laboratory findings of peptic ulcer. All of these patients showed the presence of numerous fusiform bacilli and spirochaeta. In four of these cases a microscopic examination of the gastric contents was made. Small placques of yel-

lowish mucus were smeared, and stained with dilute carbol-fuchsin. All of these showed some fusiform bacilli and numerous spirochaetae of varying size and number of spirals. Some have only two or three large spirals or undulations, whereas others showed six or eight small spirals.

During this same time, in the pathological department I was making smears from definitely diseased appendices which were removed at operation. All together smears were made from fourteen specimens. Of this number ten showed fusiform bacilli and spirochaetae varying in number from one to ten in microscopic field.

If we study the pathology and symptomatology of Vincent's infection of the mouth and some of these pathological conditions of the gastrointestinal tract we will find a more or less parallel condition. In gingivitis there is a dissolution of tissue and ulceration of the gum margins. In a Vincent's infection of the tonsils again there is a dissolution and severe ulceration of these structures. If the infection involves the mucus membranes of the mouth the resulting condition is ulceration. If we now examine the pathology of gastric or duodenal ulcer we find a similar condition as in Vincent's infection of the mouth, a dissolution, destruction and ulceration of the mucosa. In cases of appendicitis which have advanced to the point of perforation we find that there is a dissolution and ulceration of the mucosa of this organ. Likewise in cases of ulcerative colitis we find a similar pathological progress present.

Of the symptoms which are present with this type of infection pain is the predominant one. It must have been the factor which led to labeling these conditions of the mouth as Vincent's angina. We know that this infection of the mouth is probably the most painful of the various diseases which may affect the mouth. If we observe the conditions of peptic ulcer or appendicitis we note that the predominant symptom is pain of more or less of a constant, aggravating nature. The pain in all of these pathological conditions is quite characteristic.

We note that a febrile condition of from 100 to 103 degrees may be characteristic of an acute, sudden infection of this nature. In an acute Vincent's angina frequently a temperature coexists. In an acute ulcer attack you may have a temper-

ature. In acute appendicitis a temperature is characteristic. In the chronic infections with these organisms you rarely have a temperature present. In ulcerative gingivitis which is nearly always chronic a temperature rarely exists. In chronic peptic ulcer a temperature is rarely ever noted. In chronic conditions of the appendix a temperature is not common except with acute exacerbations.

In acute infections with Vincent's angina there is as a rule a moderate leukocytosis. In acute peptic ulcers there is as a rule a mild leukocytosis. And we know that one of the diagnostic features of acute appendicitis is a moderate leukocytosis.

A condition that is common in all of these pathological conditions is the regularity of capacity to show improvement and have recurrent exacerbations. In the majority of cases these conditions continue until a spontaneous cure results or until relieved medically or surgically.

The frequent recurrence of a second ulcer after a gastro-enterostomy is probably due to a reinfection at the sight of surgical interference from the old ulcer. We are sometimes prone to believe that trauma offers an avenue of entrance for these spirochaetal infections.

A feature which we commonly note in a Vincent's angina, either acute or chronic, is a foul, fetid odor from the mouth. Not infrequently you will note this same fetid odor from the breath of a patient suffering from peptic ulcer. A gangrenous appendix on removal frequently eliminates a fetid odor.

This diseased condition of spirochaetal infection is probably contagious. The manner of contagion is by either direct or indirect contact. It is probably spread in the same way that the acute infectious diseases are. There seems to be seasonal epidemics of it. From clinical observation it seems to be more wide spread and virulent during the spring and fall months, subsiding during the summer and winter months. This infection seems to gain its foot hold in certain persons who have a tendency to neglect their oral hygiene.

There are two avenues by which these organisms may reach the intestinal tract. One is hematogenous and the other is by ingestion. As far as the hematogenous avenue is concerned this would have

to be proven as yet. The conveyance of the infection from the mouth to the gastrointestinal tract by ingestion, seems the more plausible at this time. Apparently these organisms may be carried down with the food and lodge in those suitable and selected areas where the described lesions are produced. As far as the pathogenic powers of these organisms are concerned we do not know whether they are exotoxic or endotoxic in nature. Their presence at the site of lesions would make you suspicious that they are endotoxic in nature.

Since my coming to Enid, Oklahoma, fifteen months ago, I have examined and treated six cases of peptic ulcer and four cases of appendicitis. Of these six cases of peptic ulcer, three had been examined and diagnosed by other physicians as such, besides my own impressions. Two of the cases I know positively to have been suffering with ulcers because both were submitted to surgery. One was operated for perforation and the other was operated for a resection of the ulcer. Both of these after operation developed their characteristic symptomatology of peptic ulcer. All of these cases gave a definite history of bleeding gums and pyorrhea from two to ten years duration. Microscopic examination of their gums showed the presence of numerous spirochaeta and fusiform bacilli. A microscopic examination of the gastric content of four of these demonstrated fusiform bacilli, and spirochaeta. Two of these cases which had been having their ulcer symptomatology for five to eight years showed on microscopic examination only spirochaeta and no bacilli. There was no microscopic examination made on the two patients which had been surgicalized because we felt it was not necessary as smears from the teeth of both of them showed a Vincent's infection present. Furthermore there was positive evidence of peptic ulcer. In all of these cases the Wassermann blood test was negative.

The first case which I treated for peptic ulcer on the basis of finding microscopic evidence of fusospirochaetal infection in his mouth and also in his gastric contents, was one of ten years duration. During this time he would have recurrences of his ulcer symptoms in the fall and spring. In the last two years of this gastric trouble he states he had stomach hemorrhages and passed black tarry stools for several days, after which time he suf-

fered from weakness and gastric distress for several weeks. This would gradually improve. However he was never entirely free from his trouble. This man came to me fourteen months ago for treatment of his trouble. After demonstrating a fusospirochaetal pyorrhea of his mouth and finding spirochaeta in his stomach contents, I proceeded to treat him on the basis of a spirochaetal infection. He was given two intravenous injections of neosalvarsan at an interval of seven days. The first dose was .45 grams and the second dose was .6 grams, using Abbotts' products. About one week after his last injection his gastric symptoms began to subside. Six weeks later he was not having any gastric disturbances and eating regularly. He remained at his work and had not missed a day since April, 1930. He states that it is the first relief he has had in ten years.

The second case I examined and treated was an Italian lady who had suffered with gastric pain which occurred about one hour after eating and remained to the next meal or until she took soda which relieved it. She says she had vomited some blood twice. Examination of her mouth showed a severe pyorrhea in the pus of which were numerous spirochaeta and fusiform bacilli. On an Ewald's meal the gastric contents showed 75 c.c. returned from an intake of 300 c.c. in one-half hour. The acidity was HCl 32 and total acidity 58 degrees. The test for blood was very positive. Microscopic examination showed very numerous spirochaeta of the large undulating morphology. This trouble she had for over three years. She was given two doses of neosalvarsan .45 grams and .6 grams at an interval of seven days. On the third week after the second injection she stated that her stomach had felt better than it had for the past three years. It has been twelve months since I treated her and during this time she has enjoyed freedom from her gastric disturbances.

The third patient whom I treated was one with a clinical history and laboratory findings similar to above except that the time of gastric trouble was two years, and both spirochaeta and fusiform bacilli were found in the gastric contents. This patient received a dose of .45 grams and two doses of .6 grams of neosalvarsan at intervals of one week. His symptoms gradually subsided in the following six weeks and up to the present time, which is nine

months, has been free from all his gastric symptoms and enjoying good health.

The fourth patient to come under my observation and treatment was a young taxi cab driver who presented the characteristic symptoms of pain and alkaline and food relief for a period of about one and one-half years. Fluoroscopic examination of the stomach with barium meal showed the spastic contractions of gastric irritation. Gastric analysis showed HCl 41 degrees and total acidity 63 degrees and trace of blood. There was much mucus and flakes of muco-purulent material. Microscopic examination showed numerous fusiform bacilli and a number of spirochaeta. Diagnosis of peptic ulcer was made. He was given four doses of neoarsphenamine of .45 grams at intervals of four days. After the second dose his burning between meals had considerably disappeared. After his third treatment he quit using his alkali powders because they were nauseating him, and he stated that he felt very good with only occasionally lightning flashes of pain in his stomach. Three weeks after the fourth dose he stated he was feeling excellent and had gained seven pounds in weight. It has been three months ago since he was treated and he continues at his work every day feeling better than he ever did.

The fifth case I treated was one who was operated for a perforated ulcer. At operation his ulcer was simply sutured over and closed. He had an uneventful recovery for six weeks. About four weeks after leaving the hospital he had a return of his ulcer symptoms in violent form. Knowing that his ulcer was active I proceeded to treat him. His veins were so small and collapsible that I resorted to sulpharsphenamine intramuscularly. He was given four doses of .5 grams at intervals of four days. His symptoms suddenly ceased after the second injection. He started taking various foods without any disturbance. After the fourth treatment he had gained nine pounds in weight and said he felt the best he ever has. Three days after his last treatment he took up his work as a salesman. It has been over three months since he was treated and he continues to do well.

The last case is one which was operated at Mayo's in 1922. Their impression at that time was ulcer of the stomach. For fourteen weeks he had been bed-fast from pain, vomiting, and weakness of the char-

acteristic ulcer type. Due to the collapsible nature of his veins the first dose was given intramuscularly. He was put on raw meats and egg nogs to build him up. After two days his vomiting ceased and he said he surely relished his food. His pains were lessening considerably when his second dose was given which was intravenously. His last three doses were given intravenously. His gastric pain has been gradually subsiding and occurring more spasmodically at irregular intervals. He seems to have more trouble with accumulation of gas on his stomach. Physically he has shown improvement. He is stronger and has gained eleven pounds in weight and his anemia has cleared up. His blood count was 3,100,000 when I first treated him. In about six weeks time it was back to 4,800,000 with hemoglobin of 85%. Because of other possible existing conditions I do not know what the final results on this man will be.

Four cases of chronic recurring appendicitis were studied and treated on the basis of a fusospirochaetal infection. In all four of these cases evidence of Vincent's infection of the mouth was determined. Three of the cases presented evident ulcerative gingivitis, bleeding of gums for a period of one to two years duration. One case did not show much in the way of a mouth infection except that gums would occasionally bleed on washing them. However she was the sweetheart of one of the above three who had a severe case of ulcerative gingivitis. They became acquainted and kept company for a period of about eight months before I saw them. She had never had any pains in her abdomen until the eight months time she was acquainted with her boy friend. But during these eight months she had five attacks of appendicitis and always a soreness in her side.

The first one of these cases was treated about one year ago. At that time he was in bed three weeks with a severe attack of appendicitis. He was in severe pain the first time I saw him. He was given four doses of .45 grams of neoarsphenamine at weekly intervals. Three days after the first treatment he was able to be up and around the house. On the fourth day he went out and moved a garage. After his fourth treatment his pain and soreness was all gone and he was back to labor, the first time in one year. Since his treatment he has not had any pains or abdo-

minal trouble. He has been working at his carpenter trade fourteen months now.

The next two cases were the above mentioned man and his sweetheart to whom he apparently gave some of his Vincent's infection. They were both treated with four doses of .45 grams each. It has been eight months since they were treated. His mouth infection cleared up and his attacks of appendicitis ceased and all soreness has left. He continues to feel excellent. The girl has not had an attack of appendicitis since she was treated eight months ago.

The fourth case was a book store salesman. He has been having attacks of appendicitis for about two years, about six times a year. For the last six months his right upper pelvic region has been tender and at times caused pains. I saw him about three months ago and he had the signs of appendicitis with a white cell count of 11,000. He was treated with four doses of neoarsphenamine of .45 grams at weekly intervals. His attack let up in twenty-four hours. After the fourth dose his side felt fine. He said it was the first relief from soreness he had in his side for about two years. His constipation also cleared up and his bowels evacuate now twice a day. This man was treated about three months ago. Of course time enough has not elapsed yet to reach a conclusion with him but his improvement justifies reporting his case.

All of these patients had low grade temperature of 99 to 100 degrees. They had a leukocytosis ranging from 8600 to 11,000. All presented the characteristic tenderness over the mid area between the umbilicus and the anterior superior spine. Constipation was the rule in all of these cases. In no case have I attempted treatment in acute fulminating appendicitis. These cases are more probably due to some of the pyogenic infections because of their rapid course. However in the very incipency treatment might be begun and if no relief in twenty-four hours then there should be surgical intervention. I would be guided largely by the presence or absence of a fusospirochaetal infection existing in the mouth.

Two cases of acute colitis of six to eight weeks duration were examined and treated. Both showed on microscopic examination of the mouth a fusospirochaetal infection very active. Mucus from the stool of both also showed numerous spirilla. Both were treated by giving heavy doses of

calomel in divided doses and recovered from their diarrhea rapidly.

#### DISCUSSION

The etiology of gastrointestinal infections, especially peptic ulcer and appendicitis, have been very irregular and uncertain. Consequently the investigations I have reviewed seem to offer an opening into the cause of these diseases. Therapeutically similar results to mine in the treatment of peptic ulcer have been obtained by other men, but on the basis of uncertain etiology. In a review of the literature I find some men<sup>s</sup> on the basis of therapeutic treatment of peptic ulcer with the salvarsan group present the view that many ulcers of the stomach are syphilitic even in the absence of a positive Wassermann. Parody<sup>s</sup> states definitely that all ulcers of the stomach are syphilitic on the basis of therapeutic results which he has obtained with the salvarsan group. We can see where they would be led to believe this on a therapectic basis, because the same treatment is used as an effective measure in both syphilis and fusospirochaetal infections.

As for the treatment of appendicitis there is no literature to be found wherein it was treated other than surgically. However I think that it is a quite common belief in the medical profession that there seems to be a relationship between peptic ulcer and appendicitis because they both so frequently exist together. Both conditions have also associated within the greater percentage of cases, constipation.

In conclusion I wish to state that I am offering this investigation and the therapeutic results which have been so far accomplished for further study. I feel that the observations which I have made as to the etiology of peptic ulcer and appendicitis have a foundation on which to work. The therapectic results which have been obtained so far would bear out those etiological observations.

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## COMPLICATIONS OF TREATMENT FOR SYPHILIS

JAMES STEVENSON, M.D.  
TULSA

Of the drugs which are used in treating syphilis—arsenic, mercury, bismuth, and the iodides—all four give rise, in certain individuals, to undesirable, and sometimes serious reactions. The acneiform eruption produced by the iodides, the stomatitis of mercurialism and the nephrosis due to mercury are well known. This article will limit itself largely to a brief consideration of some of the complications occurring during treatment with the arsenicals.

A large number of trivalent and pentavalent organic arsenic compounds have been described, but only those which have a sufficiently low toxicity and a comparatively high spirillicidal activity are of practical use in treating syphilis; these latter being arsphenamine, neo-arsphenamine, sulpharsphenamine, silver arsphenamine and tryparsamid. It is interesting to note that a higher amount of arsenic can be injected into the body with these drugs than can be given with most other compounds of arsenic (e. g. sodium cacodylate). This is probably due to the fact that the organic arsenic preparations are not poisonous and that oxidation in the body to a crystallin form of arsenic (arsenoxid) is necessary before the arsenic can produce its physiological effects. This oxidation process requires several hours time<sup>1</sup>, and probably the active arsenic is excreted as it is formed rapidly enough to prevent toxic symptoms from appearing in the body. The toxic affects of the various arsenicals have many features in common since the arsenic content exerts a similar effect, the important features being: first, a capillary effect, characterized by dilatation, congestion with serous exudation, and minute hemorrhages; second, parenchymatous degeneration and necrosis. But the varying chemistry of the different compounds produces certain special effects, because of selective affinities for certain tissues, because of impurities which may be present, or because of errors in technique in their preparation or administration. Solutions of arsphenamine, for instance, are acid, contain methyl alcohol, and inorganic impurities as sulphites, sulphates and sodium chloride, and injection into the blood without proper neutralization results in ag-

glutination, precipitation and hemolysis, and the recipient dies from the results of widespread embolism. Dermatitis occurs more often with sulpharsphenamine than when the other arsenicals are used<sup>2</sup>. Arsphenamine is more toxic for the liver than neo-arsphenamine, and the pentavalent arsenicals, like tryparsamid have a special affinity for nerve tissue.

Ordinary care will prevent many reactions. The following rules should be observed:

1. A careful physical examination should be made. Foci of infection should be removed early in the course of treatment. In early syphilis in young robust adults, full doses of the arsenicals may be given but in treating chronic syphilis with impaired kidneys, liver, cardiovascular or nervous system, smaller doses should be used, or the patient prepared by a course of mercury before using the arsenicals.
2. Do not use arsenicals in cracked ampoules, or drugs of changed color. Water should be freshly distilled or from hermetically sealed ampoules.
3. Dissolve the drug with little shaking, to avoid oxidation. Arsphenamine solution should stand ten to twenty minutes before injection, but neo-arsphenamine should be used at once.
4. Hot water may be used in dissolving arsphenamine, but cold water should be used in dissolving neo-arsphenamine and sulpharsphenamine.
5. The drug should be injected slowly, using eight to ten minutes for arsphenamine, and two to three minutes for neo-arsphenamine.
6. In the gravity administration of arsphenamine or silver arsphenamine, new rubber tubing should be avoided, or prepared by running sodium hydroxide solution through it, followed by distilled water.
7. Do not use arsphenamine in a febrile patient, or in one with a respiratory infection.
8. Aid elimination by diet, fluids, and a purgative if necessary. Administer the arsenicals on a fasting stomach.
9. Ask the patient if he itches after each dose of the arsenical. Itching is usually a forerunner of dermatitis.

Kolmer<sup>3</sup> makes the following clinical classification of toxic reactions following

the intravenous use of arsphenamine and its substitutes.

1. Immediate reactions:
  - a. The acute physico-hemolytic reaction.
  - b. The acute vaso-paretic reaction or "nitritoid crisis."
2. Early reaction (following within twenty-four hours after injection).
  - a. The gastro-intestinal reaction.
  - b. The protein and colloidal shock reaction.
  - c. The accidents of infection, such as phlebitis, thrombosis, perivascular infiltrations, etc.
3. Late reactions (occurring one day to several weeks after injection).
  - a. Hemorrhagic encephalitis.
  - b. Dermatitis.
  - c. Neuritis, neuro-recurrences, and neural Herxheimer reactions.
  - d. Jaundice.

The Jarisch-Herxheimer reaction may occur when using mercury or bismuth, but is much sharper when the arsenicals are used. While a mild elevation of temperature may occur, the important phase is the exaggeration of the syphilitic lesions with increased swelling, redness and discharge. In neuro-syphilis and cardio-vascular syphilis the phenomenon may manifest itself by an increase in severity of symptoms. In easily penetrable tissue it begins eight to twelve hours after intravenous injection, and rapidly subsides; in tissues of low vascularity, or those relatively impenetrable to arsenic, the reaction may be delayed for a week or two. The Herxheimer reaction may be of small or great importance; the exaggeration of a chancre might be of small moment, but a reaction occurring in a syphilitic with an aortic aneurysm or a leutic hepatitis might prove fatal. In serious late syphilis, or in early syphilis involving vital structures, this reaction may be avoided by first preparing the patient with mercury.

The nitritoid crisis, so named by Milian from the resemblance of its symptoms to those produced by amyl nitrate, generally occurs while the patient is being given the intravenous injection or shortly thereaf-

ter. The patient becomes uneasy and the face is flushed. If the reaction is more marked, the skin is covered with blotches, the eyelids and face are swollen, and respiration is wheezing. Unconsciousness, with a barely perceptible pulse may ensue. Starting as the symptoms are, death has rarely occurred. The nitritoid crisis generally occurs when the drug is being injected too rapidly, and is due to the action of arsenic on the capillaries, red blood cell agglutination giving rise to capillary thrombosis in varying degrees. The active treatment of the condition consists of at once discontinuing the injection of arsphenamine, and administering ten to fifteen minims of adrenalin subcutaneously. Future reactions may be prevented by subcutaneous injection of 1-50 grain of atropine sulphate twenty minutes before giving the arsenical<sup>4</sup>, or by using the Bezredka method of dividing the dose of arsphenamine, giving one-tenth of the total amount first, followed in one hour by the remainder.

Gastro-intestinal symptoms commonly follow the intravenous use of arsphenamine, nausea and vomiting most often, diarrhea more infrequently. The routine use of a mild laxative the night before treatment, and the warning to the patient not to eat for several hours before and after intravenous therapy, is all that is needed to prevent most reactions of this type. As many of these gastro-intestinal reactions are associated with, or follow the nitritoid crisis, the preventative administration of atropine sulphate may be used.

Hemorrhagic encephalitis is apparently more common in Europe than in this country. It occurs most often in patients who have had prolonged treatment with mercury, followed by several doses of arsphenamine. A tremendous edema of the brain, resembling that of acute alcoholism, occurs, and the patient generally dies with uremic symptoms. A few cases have recovered following the use of adrenalin and the intravenous injection of hypertonic solutions.

Jaundice is a rare but serious complication of treatment with the arsenicals. The liver being a favorite location of the spirochaeta pallida, jaundice may be due to an "hepatic Herxheimer" reaction. On the other hand, the liver is a great storehouse for arsenic, and the drug itself may produce necrosis of the liver cells. Again, the

appearance of icterus in a syphilitic patient under arsphenamine treatment may be due to gastro-duodenitis, to cholelithiasis, or some other coincident disease. The occurrence of this symptom in such a patient, therefore often presents a difficult problem in a differential diagnosis. In a given case where any uncertainty exists, the arsenicals should be stopped temporarily and sodium thiosulphate given for a week and the effect watched. Later treatment may be commenced, using mercury; still later neo-arsphenamine in small doses may be used in place of the more hepatotoxic arsphenamine.

The cutaneous reactions to the arsenicals are numerous, varying from simple herpes and urticaria, to the dreaded exfoliative dermatitis. Midway in severity are those reactions resembling erythema multiforme, one of which, the scarlatiniform, closely approaches exfoliative dermatitis. Exfoliative dermatitis is the most cutaneous complication in the treatment of syphilis, sometimes resulting in death. Most cases have a prodromal warning of trouble ahead, usually in the form of severe itching on the day following the injection of the drug, and the appearance of areas of dermatitis on the flexures. If the arsphenamine is continued and early dry, but later oozing dermatitis begins, rapidly involving the entire body surface, and accompanied by edema of the skin, especially upon the legs and face. In most cases fever is present, and the patient complains of constant chilliness. In this stage the blood picture, as pointed out by Moore and Keidel<sup>1</sup> is typical, showing a leucopenia, but a marked eosinophilia. The severe cases then follow a long course, sometimes of several months duration. The edema disappears and the skin becomes dry and scaly. The patient loses weight and secondary infections are common. Finally if the patient is to recover visible sweating returns, islands of paler skin are noted, and chilliness becomes less marked. The cause of this serious complication is unknown—it is probably highly complex, as indicated in the interesting articles on this subject by Moore and Keidel, and Stokes and Cathcart<sup>2</sup>. The treatment of exfoliative dermatitis can not be gone into in detail here. Suffice it to say that it has been much simplified by the early use of sodium thiosulphate, first used in this country by McBride and Dennie<sup>3</sup>. At the outset, its use is invaluable, but it is prob-

ably of little service after the first week or ten days.

In conclusion, it may be stated that many of the complications of treatment for syphilis are avoidable with more care on the part of those treating the disease; that the treatment should not consist of a rigid routine of doses of this or that preparation.

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#### TEN YEARS OF PREVENTIVE INFANT FEEDING

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Ten years ago this month the S.M.A. Corporation, then The Laboratory Products Company, announced an epoch making development, S.M.A., to the medical profession. It represented a new idea, namely that cow's milk could be modified to resemble breast milk so closely that about 95% of the infants deprived of breast milk would do well on it, and that the anti-rachitic factor, cod liver oil, could be included so that no other protection would be necessary. S.M.A. is still the only anti-rachitic infant food available.

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CYSTS OF THE URACHUS—CASE REPORTS\*

LEROY LONG, M.D.  
OKLAHOMA CITY



FIGURE I.

Case 1. Note irregularity of upper bladder, with schematic outline of cyst above it.

The normal urachus is a solid, firm, cord-like structure that lies between muscles and peritoneum and extends from the apex of the bladder to the umbilicus. It is the remains of a tubular embryonal extension in the allantoic stalk that normally is obliterated in early fetal life.

There are instances in which obliteration either does not occur, or is incomplete. Apparently, failure of obliteration is rare.

Colston, writing in Nelson's *Loose Leaf Surgery*, states that the diagnosis was made only three times in 15,000 admissions to Brady Urological Institute. However, it is probable that the incidence is much greater, because, as will be shown, a patent urachus does not always produce symptoms through which attention would be called to it.

\*Read before Surgical Section, Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 11, 12, 13, 1931.

There are four types of patent urachus:

1. The urachus is patent throughout. This is known as the complete type.

2. There is failure of obliteration at the umbilical end. This is the blind external type.

3. There is patency at the vesical end. This is the blind internal type.

4. The two ends are closed, but some part of the urachus between the ends is patent. This is the blind type.

In the blind external type there is moisture at the umbilicus. In the complete type there is considerable leakage at the umbilicus because there is a direct communication with the bladder.

The blind type and the blind internal type may exist indefinitely without producing symptoms. These types do not produce symptoms unless there is dilatation by fluid, or infection, or both.

Occasionally the cells of the lining membrane of the patent urachus secretes watery material. It is not known why the cells of the lining membrane suddenly take



FIGURE II.

Case 1. Note distortion of bladder with schematic outline of cyst above. Extensive flattening of the bladder probably due largely to pressure from abdominal viscera crowded backward and downward by cyst.

on this activity, but I believe there are grounds for believing that trauma or associated general infectious processes might be regarded as activating conditions.

If secreted material accumulates in a typically blind urachus, or in either of the other types that has become blind by obstruction, there is dilatation of the urachus, and a retention cyst is formed. The size and extent of the cyst depends upon the extent of patency and the amount of fluid in it. When it is patent throughout most of its length with only the two ends closed, there may be developed a large cyst several inches wide and extending practically from bladder to umbilicus.

I am particularly interested in the blind patent urachus in which a so-called cyst has been formed, because such a condition presents problems of tremendous importance to the general surgeon in connection with differential diagnosis and treatment.

The urachus is approximately in the mid-line of the lower abdomen. A cyst of the urachus, therefore, is a mid-line cyst. It is tense. Usually, by palpation, the limits can be distinctly identified, even though the contents may have become infected. Let me hasten to say, however, that sometimes, in the presence of an infected cyst, there may be so much tension in the pericystic areas of the abdomen that it is difficult to accurately determine the limits of the cyst. In the developmental period this difficulty is not present.

With a large cyst of the urachus there is abdominal distress and gastrointestinal disturbance. If infection has taken place, there is pain and tenderness, associated with fever and other signs of sepsis.

Apparently, there are cases in which the urachus communicates with the bladder through a very small opening that is intermittently occluded, especially in the presence of infection. In such a case there may be intermittent escape of material from the cyst into the bladder with concomitant changes in the size of the cyst. The phenomena in one of our cases seem to support this hypothesis.

*Case 1.* On January 28th, 1931, through the courtesy of Dr. Tom Lowry, I examined Walter T., a white boy five years of age. I was asked to see him because of a recently developed globular mass occupying the mid-portion of the lower abdomen from symphysis to near the umbilicus.

There was a history of respiratory tract infection beginning January 18th, 1931—two weeks before I saw him. In connection with it there was pain and tenderness of the abdomen, and there was fever, accelerated respiration and other evidences of acute respiratory tract infection.

After five or six days there was pronounced improvement, and it was thought the patient was convalescing; but two days later there was a chill, followed by a temperature of 104. There were severe abdominal pain and tenderness, rigidity and distention. The W. B. C. at that time was reported within normal limits.

Two days later there were less general distention and rigidity, but in palpating the abdomen Dr. Lowry discovered the mass. In order to determine whether it was a distended bladder, a catheter was introduced, recovering only a few ounces of urine, and making no change in the size of the mass. When the catheter was withdrawn it was observed that a small amount of material having the gross appearance of pus, was clinging about the end. The laboratory reported a few pus cells in the urine. The material on the end of the catheter was not examined in the laboratory. At this time there were remittent fever and a W. B. C. of 17,000, with a neutrophile percentage of 83.

The most striking physical finding, when I saw the child, was a perfectly symmetrical, tender, almost immovable, mid-line tumor measuring some four inches transversely and extending from symphysis to near the umbilicus. The surrounding abdomen was not tense. There was audible peristalsis.

Deferring an opinion, I had a discussion with Dr. Wendell Long, who suggested that the tumor might be an infected urachal cyst. After a second examination I thought this the most reasonable explanation.

The child was sent to the hospital where a roentgenograph of the bladder was made after filling it with an opaque solution. It appeared to be of normal size, but a little flattened and broadened, as if there was pressure above it.

The next day the mass was smaller, the temperature not much above normal, and general improvement. The only reasonable explanation of the reduction in the size of the mass was that the cyst was emptying itself into the bladder. The

parents were permitted to take the child home, but almost at once there was increasing enlargement of the mass, accompanied by fever and increased tenderness of the abdomen. Three days later it was definitely decided to operate, and the child was sent back to the hospital.

Operation was done on February 5th, 1931, through a four and one-half inch incision just to the left of the mid-line. The recti muscles were separated, when immediately two or three ounces of whitish, odorless pus escaped. Drainage tubes were put in and the wound closed. The pus was between muscles and peritoneum. A culture grew staphylococci.

Drainage ceased in about three weeks. I believe that, through granulation following incision and drainage, the cyst has been obliterated.

This child had always been well. There had not been symptoms indicating urinary tract disturbance.

It will be noted that the mass in lower mid-abdomen appeared after an acute respiratory tract infection. Is it not a reasonable conclusion that the cells of the lining membrane of the patent urachus were activated by the toxemia?

There is another interesting speculation in connection with the sudden and decided change in the size of the mass. It might be explained on the hypothesis that there had been a blind internal patency, and that the opening into the bladder became occluded, this occlusion temporarily disappearing later under pressure; or that there had been a blind patency with frail and imperfect occlusion at the bladder end, this occlusion being overcome by pressure.

Cysts of the urachus are seen most often in childhood, and the majority are in male patients. In this connection it may be interesting to report a case in a woman.

*Case 2.* Mrs. O. H. H., multipara. 27 years of age, entered University Hospital March 14th, 1925, because of abdominal pain with great distention, after an illness of a month, the illness beginning four days after a normal confinement, and being characterized, in addition to pain and distention, by fever, nausea, vomiting, loss of weight and strength. For a week there had been a right sided parotitis.

On admission, after a long journey, the temperature was 102.8, pulse 140. The ap-

pearance was that of an extremely sick woman. The abdomen was tense, distended and tender. The percussion note over a considerable area in lower mid-abdomen was flat. There was occasional audible peristalsis. Notwithstanding the unexplained flat area and the audible peristalsis, there was a tentative diagnosis of peritonitis, origin unknown.

Incision and drainage of the parotitis reduced the toxemia, and there was some improvement, but there was no change in the abdominal part of the picture until six days after entrance, when a small, tender fluctuating mass just to one side of the center of the umbilicus was observed. It was arranged to incise it the next morning, but during the night it ruptured spontaneously, when, according to the intern on the service, "about a gallon of cream colored, rather thick, odorless pus escaped." The amount guessed by the intern was probably too great, but there was a large amount. Cultures grew a Gram-negative bacillus and a Gram-positive diplococcus.

About three weeks after the rupture, the drainage being inadequate and intermittent, the tract was located by passing a probe, after which it was dilated and a 14 F. soft catheter introduced. This was followed by the discharge of 400 c.c. of greenish yellow pus. After the discharge of the pus, the cavity was irrigated with normal saline solution, and this was followed by the instillation of 7 c.c. of 2% mercurochrome. The irrigation and instillation were repeated daily.

After securing adequate drainage, there was rapid improvement but, as would be expected in connection with such a large cavity, drainage did not cease entirely for several weeks. She was discharged in good condition May 10th, 1925.

It would seem reasonable to conclude that this was a case of blind patency of the urachus, with a relatively thin covering at the umbilical end that finally yielded under the tremendous intracystic pressure in connection with the advancement of infection by continuity. It would, too, seem reasonable to conclude that activation of the lining cells might have been associated with the trauma of pregnancy and confinement; possibly with a toxemia following the pregnancy.

Sometimes an atypical cyst of the urachus may be associated with other neigh-

boring developmental defects, such as lack of fusion of some part of the urinary tract and defective development of the lower mid-abdomen, as illustrated by the following case:

*Case 3.* R. D. C., a white boy of six years, was admitted to Crippled Children's Hospital, February 27th, 1931, because of a globular mass between umbilicus and symphysis, at one side of which there was leakage of fluid; and because of a defect of the roof of the urethra, these things having existed from birth.

The mass below the umbilicus was about three inches in diameter. There was a large defect in the deeper structures of the abdominal wall. A part of the mass could be reduced through this defect. Just to one side of it there was a more tense mass about one and one-half inches in diameter that could not be reduced, and near its apex there was a tiny opening through the skin, from which there was an intermittent escape of small droplets of clear fluid.

The injection of colored water into the bladder did not change the color of the escaping fluid. An X-ray, with the bladder injected with opaque material, did not indicate a diverticulum. Lipiodol injected by way of the opening in the skin showed a picture apparently entirely distinct from the bladder.

Incidentally, the X-ray showed a wide separation of the pubic bones. Aside from the defects noted, the boy appeared to be perfectly well.

The diagnosis of the abdominal pathology was atypical cyst of the urachus and ventral hernia, and this was confirmed by surgical operation on April 1st, 1931.

At operation the hernial sac was opened, the redundant part of it excised and the peritoneum closed. In this way we were able to definitely isolate the dilated urachus, which was surrounded by condensed fat and fibrous tissue except where it was in contact with the peritoneum. This mass was in very close contact with the bladder, being separated from it by a thin layer of dense tissue, through which no opening could be demonstrated. The top of the bladder was attached to this tissue, and, through this attachment, was held abnormally high. In order to mobilize the bladder, a section of it was excised and removed with the mass, after which the bladder was sutured and the abdominal

wall closed around a tissue drain. There was some leakage for two weeks, but the patient was discharged in good condition on April 30, 1931.

In this case the cyst was not very large, but the anatomy was greatly distorted, making it difficult to accurately separate the cyst from the structures in front of it. Again, there was wide separation of the recti muscles, the cyst protruding between them.

In the presence of normal superimposed anatomy, an effort should be made to enucleate an uninfected cyst without sacrificing the overlying muscles. In the presence of infection, I do not believe that enucleation of the cyst should be undertaken. In my judgment, it is far safer to drain. Besides, after incision and drainage of an infected cyst, it probably will be obliterated by granulation.

Finally, the diagnosis of cyst of the urachus involving its lower reaches should not be made until it has been demonstrated that the enlargement is not due to a distended bladder.

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DISCUSSION: *Dr. Bransford Lewis, St. Louis:*

I am very much interested in Dr. Long's paper. I think that we see these cases occasionally where differential diagnosis comes into consideration and he has given that as well as it can be given. If this condition becomes infected it is likely to be followed by disaster.

*Dr. Long, Sr.*

I thank the gentleman for his kindness in discussing the paper.

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MILIARY TUBERCULOSIS OF SPLEEN WITH  
THROMBOPENIC PURPURA HEMOR-  
RHAGICA

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According to Ellis Kellert, Schenectady, N. Y. (Journal A. M. A., June 27, 1931), tuberculosis of the spleen is uncommon considering the total number of tuberculous individuals, and even more rare is its association with purpura hemorrhagica. He describes the case of a woman in whom these two conditions concurred and in whom there seemed to be a relation between the infectious process in the spleen and the severe purpura hemorrhagica.

## WHY DRAIN THE PERITONIAL CAVITY\*

ROSS GROSSHART, M.D.  
TULSA

The peritoneal cavity is a closed airtight barrel from the diaphragm to the pelvis, lining the interior as well as covering the organs therein; which becomes infected from the hollow viscera or from punctured wounds carrying infection from without into the cavity.

The infection when introduced into the cavity causes symptoms that we all know as peritonitis, and named by the location of the offending organ.

These infections may be of many different kinds. Most prevalent are the colonic, Welchian staphylococcal, gonococcal and streptococcal; however, not exempt from any of the pathogenic organisms.

When peritonitis is diagnosed, there is only one treatment either early or late, and time for interference is selected by the attending physician or surgeon and the route to approach same.

The patient is prepared, anesthetized, incision made to relieve the peritoneum of its offending organ and allow it to return to normal function. To drain pus cavity, whether it is confined to one local position or whether it is a general peritonitis is the same phenomenon. The peritoneum and omentum throws a wall around the drain in three or four hours or sooner, and your drainage does nothing but allow saphrophytic infection to enter and break down the cofferdam surrounding the drain and change the infection from the immediate offender to a saphrophytic and immediate infection, which gives you a tissue destroyer as well as a good culture medium for the original infection, and finally overwhelms the resistance of the peritoneum, which is the greatest resister to infection of any tissue in the body; and by introducing a foreign body capable of admitting air and infection which does not drain the cavity, puts the peritoneal cavity in an abnormal condition, and advances infection already existing by lowering the tissue resistance by saphrophytic infection, giving the better culture medium for growth and absorption.

Let's analyze the habits of bacteria:

Welchian anaerobic must have dead or devitalized tissue to produce toxemia, caused by saphrophytes which establishes gas infiltration, cuts off the blood supply and devitalizes and allows progress of infection.

Gonococci is aerobic and will not multiply in a closed cavity—hence pyosalpinx gonococcal after closing the tubes. Hydro-salpinx results.

Colonic is the same as gonococcal. Staphylococcal works best in the presence of oxygen, which is supplied by drain.

Streptococcal works best in the presence of oxygen, but the patient will die, drained or not drained. The best chance is not to drain. When you drain a pus cavity you put in drain to bottom of cavity and close the belly wall around drain.

The omentum and peritoneum begins at once to wall off the foreign body and accomplishes this, in three to twenty-four hours, and all the benefit you get is from actual contact with the wall formed, and does not drain any farther than the wall; but it does do harm by admitting oxygen to the cavity, also admitting saphrophytic bacteria into cavity to carry on putrefaction, and gives a good culture medium for pathogenic bacteria to multiply, which will exhaust your patient's already lowered resistance and toxic condition, and may cause pressure on devitalized gut and fecal fistula. The results will be adhesions following healing by granulations, causing hospitalization from four to six weeks longer than if not drained.

### MODE OF PROCEDURE

Diagnose carefully so you may decide on the best route to approach. Make incision large enough to work dexterously and expose field of infection if abscess is walled off, dam off with belly tape. Thoroughly open abscess and sponge pus out until dry. Break down adhesions, remove source of infection, ligate and remove all infected tissue, omentum and other appendages. Control all hemorrhages and oozing, have cavity dry and then pour in enough ether to fill the cavity. Remove tapes and close belly with ether left in belly which will be boiling, close peritoneum as quickly as possible by having it isolated before ether is put into cavity. Close belly wall same as if a clean case.

If general peritonitis with free pus in belly, drain through wound, dip out pus until it is dry; find cause of infection, re-

\*Read before Annual Meeting Oklahoma State Medical Association, Oklahoma City, May, 1931.

move same as if walled off, dry cavity with tapes, and sponge into kidney cavity under liver, spleen and pelvis. Pour in ether, see that it covers all the spaces, close peritoneum as before mentioned.

#### POST OPERATIVE

Put patient to bed in Fowler's position—and I mean Fowler's position—not elevated head of bed or their neck bowed; but see that the whole spine is at least in a forty-five degree angle with the horizontal. Hold respiration between twelve to fourteen per minute with morphine, give glucose intravenously until it spills over through the kidneys. If dehydrated (which most patients are) give sodium chloride solution, quantity enough to fill up tissue and bring up the chlorides in the urine, this can be assisted by the Murphy drip. For gas give enema and pituitrin and insert rectal tube. Catheterize every eight hours if necessary, as morphine may paralyze the bladder. Keep stomach empty and lavage same if regurgitant emesis continues. At the end of seventy-two hours (post operative) if you can hear any vermicular movement in the intestines, give five grains of calomel, follow in eight hours with saline per orum.

You will get healing by first intention in ninety per cent of your cases, and a hospital discharge in two weeks; the other ten per cent may have fat infection which will heal readily. No bad adhesions and no hernias; hospital time cut one-half at least.

I have been following the above procedure for the last ten years, with a mortality of six per cent, including pneumonia, shock, emboli, suppression of urine, etc.

#### WHY USE ETHER IN CAVITY

Because it is the best non-irritating antiseptic, boils at body temperature, gas enters all recesses in the belly cavity stimulating circulation and lessens the amount of morphine, and I am of the opinion lowers the vitality of the infection until the phagocytical action has been established, or a bacterial phag has come to the rescue. All I can say is—it works.

217 New Wright Bldg.

#### DISCUSSION: Dr. Bollinger, Henryetta:

I cannot agree with Dr. Grosshart, I cannot pour the abdomen full of ether but we have a man in Tulsa who does and he gets away with it. He empties a whole

can of ether into the abdomen, but I just cannot do it. I believe when we do that, we excite an irritation of the tissues, get more adhesions, lower the temperature of the abdomen and increase the shock, and further, I do not believe it is an antiseptic. I do not think ether will destroy a germ. I see this method practiced all the time, but I just cannot bring myself to using this method of treatment. I believe that the doctor gets results, but the results are not because we are putting ether in there, but the results come from after treatment which the patient receives.

#### Dr. W. C. Vernon, Okmulgee:

I was wondering if the doctor did not think perhaps that the results he receives are due to bacteriophagic action and not to the ether?

#### Dr. E. K. Collier, Tipton:

Do you put ether in the abdomen before you close the abdomen, if you are not going to drain?

#### Dr. Ross Grosshart: Closing Discussion:

Ether will dissolve the capsule of any bacteria, the same as it will dissolve the crevices in the skin and render them inert. Many of the germs which we have are encapsulated, and they reproduce themselves by division. Ether stops division. If we take a culture tube and put a most virulent culture of anthrax in a tube of ether and put it in an incubator of 37 degrees centigrade the anthrax will never grow again. I have experimented with this time and again. Ether is an antiseptic which stops the development of that individual bacteria and this is the benefit of ether. It absorbs and it forms a gas that goes into every recess of the peritoneal cavity. It is non-irritating. Ether put in the eye will only redden it, and it will not hurt the eye at all. The peritoneum is a most resisting tissue. Take away the debris, get rid of all the blood clots, all the excessive pus, get the cavity as dry as possible, and put your ether in, and it will stop the infection from regenerating itself. Did you ever see a Welch bacteria on a wound that was not contused? You do not have it. You have to get dead tissue for the Welch bacteria to grow upon and they are always present in the intestinal tract. If you do not give them something to grow on, we will not be troubled with

the Welchi. The gonococci which causes peritonitis is anaerobic and it has to have air to multiply. We cannot culture a gonorheal infection out of a knee joint. The streptococci is the only infection that I know of, that the ether and other conditions will not take care of. Every surgeon who sees the condition of the intestines and the secretion that is thrown out will recognize the streptococci. The peritoneal case that dies under this treatment is the one that is due to streptococcic infection. In the colonic, gonococcic, Welchi, etc., infections, fill the abdomen with ether and close, then forget all about it.

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#### RECENT FACTS ON TRANSMISSION OF TUBERCULOSIS

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J. Arthur Myers, Minneapolis (Journal A. M. A., Aug. 1, 1931), deprecates the fact that students of medicine and nursing are being left with the impression that it is a good thing to come in contact with patients suffering from tuberculosis and receive just the right dose to give them a positive tuberculin reaction. Under such conditions the dosage is entirely uncontrolled. The number of bacilli which the student's body receives from contact with tuberculous patients may vary from a few to huge numbers. Where careful observations have been made in this country, it has been shown that approximately 30 per cent of the probationers in schools of nursing react positively to the tuberculin test but, after they have taken tuberculosis services, from 80 to 100 per cent have been found to react positively. Since a positive reaction indicates an allergic state and since there is reason to believe that the destructive phase of tuberculosis is brought about by the allergic reaction, it would seem obvious that nothing but harm has been done by allowing students to take unmeasured doses of tubercle bacilli into their bodies and develop a state of allergy. But what immediate evidence is there that allergy is dangerous to the student? The best evidence is that from 5 to 12 per cent of student nurses have presented themselves with tuberculous disease that required treatment soon after allergy was manifested by a positive tuberculin reaction. Pleurisy with effusion is looked on as one of the early manifestations of tuberculosis. In itself, it is an allergic reaction. Many patients are desperately ill from it over a considerable period of time. Abundant clinical experience has taught that pleurisy with effusion is frequently followed by pulmonary tuberculosis of the destructive type. Therefore, in the light of such evidence, who will dare state that an allergic reaction, as manifested by the tuberculin test and brought about by exposure to human beings suffering from tuberculosis, is of benefit to a student? The author desires to leave the answer to the reader and to the students themselves as to whether exposure of students to tuberculous patients should be allowed to continue or whether it should be prevented by the adoption of an adequate contagious technic.

## SOME SURGICAL BROWSING

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F. L. WATSON, M.D.  
MCALESTER

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The first slide I will present today is that of an advanced case of granuloma inguinale. This was in 1919, when we did not know as much about this condition as we have since learned. Meridith Campbell, New York, had an article in the J. A. M. A., March 5, 1921, in which he claims antimony and potassium tartrate is a specific. Used early I have great confidence in this treatment. This patient had K. I. and salvarsan in enormous quantity; first in Hot Springs, then by me and again in Kansas City, but he grew worse each day until he died. I have seen three other cases, two of whom entirely recovered; the third case left for greener pastures, and I lost track of him.

Slide 2 is a spleen weighing 22 pounds which I removed from a young negro woman in 1917. This woman was brought in with diagnosis of cystic tumor of ovary, but the diagnosis was differentiated by bimanual vaginal examination. I exhibited this tumor in Chicago and Philadelphia at two large medical meetings. An internationally known surgeon remarked, "That fellow can do surgery; do you note that he says, 'Patient living four months after operation?'" She was still living four years after the operation when I last heard of her. Dr. J. Worth Gray of Oklahoma City, assisted with this operation. Diagnosis, syphilitic spleen.

Slide 3 shows a lipoma corpus adiposum buccal before removal. The next two slides show the tumor (two slides) after removal. The origin of this tumor is the infantile sucking pad located and wedged between the buccinator and masseter muscles covered by superficial fascia and zygomatic muscle. This patient was a woman 73 years of age, and lived in comfort until the ripe old age of 82. She first noticed this tumor when 20 years of age and carried it gradually growing for 53 years. It was so large and heavy that she had to have an extra pillow for it at night. She said to me when I did the operation, "If you can just give me one year of freedom from that thing, I will be happy." She got nine years of perfect comfort. This tumor was removed in 1921 and weighed six pounds net at time of removal. Angus L. Cameron, Rochester,

Minn., in J. A. M. A., March 19, 1931, collects and reports sixteen cases. This tumor was larger than any reported. Dr. J. F. Park, McAlester, Okla., assisted me in the removal of this tumor.

The next slide is a uterus didelphys removed, May 6, 1916, assisted by Dr. T. T. Norris of Krebs, Oklahoma. You will note the single cervical canal which bifurcates and goes out into each respective uteri. Note the single tube and ovary attached to each half. The pre-operative diagnosis in this case was walled off pyosalpinx of long standing. This woman was near the menopause, married a number of years, never pregnant. Each month she suffered so severely from dysmenorrhea that she had to go to bed the entire time and have morphine. The rest of the month she was entirely well and active, no morphine until next menstrual epoch. On account of the palpable tender tumors, it was decided to remove these pus tubes. Imagine our surprise when we uncovered the specimen you see on the screen, which was trimmed up before kodaking. This slide is made from a drawing of the kodak negative. After convalescence she has been entirely well and free from her monthly terror.

The next slide is that of a cervical polyp which grew for years and underwent fibroid degeneration. The patient was a woman 70 years of age who came into my office and said, "Doctor I have something 'anging out of me," (she was English). She said she "'ated to but she would just 'ave to show me." When I had her placed on the table, I decided that she did have something hanging out of her myself. The dark spot you see near the top of the tumor is an eroded area caused by the pubic hair, as she carried this tumor turned up over her pubes supported by a perineal pad. It was easily discernable that this tumor was attached to the cervix, and as the uterus was entirely prolapsed, vaginal hysterectomy was easily done and she made a speedy and complete recovery.

The next slide is the tumor after removal and the probe is in the uterine canal. This operation was done December 18, 1919. No assistant; anesthetist, Dr. L. C. Kuyrkendall, who many of you will recognize as the front end of this tumor, but it was not on the other end of him.

The last slide is a railroad bridge washer. The opening you see will allow a nickel to pass through but will not admit a quar-

ter. The flat surface around the opening is one inch in diameter. The diameter of the reverse side is three inches, weight 13 ounces. On April 19, 1919, 2:00 A. M., Dr. H. N. Bussey called me to come down town as he had something he could not talk over the telephone. When meeting the doctor and his patient, a man about forty years of age, you can imagine my astonishment when I tell you that he had his penis through this hole and the reverse side of the washer as you now see it clear up against his abdomen, and said penis was about twice the size it would be in a normal state of erection. Every one thought the penis would have to be amputated, yet I would not give up. I split a rubber glove in half, slipped about one inch through from front to abdomen with a mosquito forcep. Then I fixed the short end with a standard size hemostat and began to wind in front following the wrapping with the washer until I had it about one-half way removed. It began to look like I was going to burst the glans, so I took a fine point bistoury and made small punctures in the cutaneous surface distal to the washer. Immediately it began to spray serum like a park fountain, and reduced rapidly in size so that one more wrapping removed it easily. I asked the fellow what in the world he was doing getting in that fix. He said, "Oh I was jus' projjikin." If you know what that means, you will understand; I have been unable to find it in the dictionary. Dr. H. N. Bussey now of this city helped me with this case. That is all and when the lights come on I will show you the original washer.

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#### FAMILIAL EPIDEMIC OF ACUTE DIFFUSE GLOMERULO-NEPHRITIS: RELATION TO PATHOGENESIS OF DISEASE

A Carlton Ernestene and George P. Robb, Boston (Journal A. M. A., Nov. 7, 1931), record a familial epidemic of acute diffuse glomerulonephritis not due to scarlatina. Eight of ten children successively developed an acute infection of the upper respiratory tract and, in six, symptoms and signs of acute diffuse glomerulonephritis appeared during convalescence. The interval elapsing in each case between the onset of the acute infection and the appearance of nephritis supports the hypothesis that acute diffuse glomerulonephritis results from the development of a state of hypersensitivity to the primary infection. Although cultures from the throats of all subjects yielded streptococci, absolute proof as to the precise identity of the organism causing the primary infection could not be obtained.

## INTRAVENOUS ANESTHESIA WITH SODIUM AMYTAL IN SURGERY

A. L. BLESH, M.D., F.A.C.S.  
Oklahoma City Clinic Building  
OKLAHOMA CITY

From time to time with the discovery of one anesthetic after another, the announcement has been made confidently that now the ideal anesthetic has been found. Chloroform has had its day; ether waxed strong and is going well yet; anoxic association, that is a combination of one of the gases, mostly nitrous oxide and local, still stands well in the favor of the discriminating; ethylene, while recognized for its wonderful anesthetic properties because of its explosive nature, has put the fear of the Lord in the general professional mind to the extent that its use has been much curtailed in spite of its otherwise most desirable qualities; local by infiltration and block is the mainstay of only a few surgeons and does not bid fair to become the general anesthetic. The element of psychic impact while imponderable is real with some patients and it cannot be gainsaid that very special training is necessary to its satisfactory use. Spinal has had a tortuous climb to the special favor of a rather small but growing percentage of the profession. There are certain and positive advantages to both patient and surgeon in its use but in addition to the psychic factor mentioned, there is also the lowered blood pressure which to many is alarming, to be reckoned with.

What then are the principles of an ideal anesthetic?

1. Ease of administration and freedom from distress to the patient.
2. Complete anesthesia so that the patient will have no disturbing, painful memories.
3. Safety to the patient either from sudden anesthetic death, postoperative visceral degenerations, lung involvement or extraneous dangers from explosions.
4. Freedom from nausea during convalescence.
5. No operating room memories.

All of the anesthetics mentioned are open to one or more of these objections, yet all have stood the profession well in hand during the past.

The interest shown by the profession in

the study of anesthesia and anesthetics has resulted in the discovery of new ones and in the more scientific use of all of them. The surgeons who have the interests of their patients at heart are no longer satisfied with an untrained anesthetist. An anesthetist in the modern sense is a highly trained specialist. The responsibility assumed by the anesthetist is today recognized as comparative to that of the surgeon. It is assumed in all the propositions laid down in this paper that a responsible anesthetist is in charge of any and all anesthetics. The selection of the proper anesthetic for the patient and the disease is looming larger all the time.

Sodium amytal is an anesthetic best administered by the intravenous route. It is open to the same objections as spinal and that the dose once administered is beyond recall. This is not an insuperable objection provided great care is exercised. The drug should be administered "to effect." Our rule has been to inject slowly taking about 10 minutes and after the patient has quietly dropped to sleep to continue the injection until two or three more grains are given. The patient will often lapse into sleep in the middle of a sentence leaving it unfinished. It has never failed to produce a deep slumber. We think however, that a slumber deep enough to permit painful surgery without being reinforced by an inhalation anesthetic is so profound as to be dangerous; hence we have used it only as a basic anesthetic.

As is well known our clinic has always advocated and practiced the lightest possible general anesthesia which when reinforced by local, and surgical strategy is consistent with a good surgical delivery. We believe a profound anesthesia with any general anesthetic including sodium amytal is an overdose and harmful and is to be avoided when possible. We believe in and practice ways and means to make this possible. Mixed anesthetics will often help since no one possesses all of the desirable qualities. Combinations with local is our greatest aid. We use this also with sodium amytal.

### METHOD AND DOSAGE

Sodium iso-amylethal barbiturate (sodium amytal) is a barbaturic acid derivative and shares with all the barbiturates in its hypnotic quality. In sufficiently large doses it is also anesthetic. While we have not used it in our clinic in an-

esthetic dose because we feel that without a specially trained nurse in constant attendance upon the patient, it would not be safe in this sized dose. This being true it is unsuitable to be used in this dosage as a routine anesthetic, for the reason that not nearly all patients can afford the price of such an attendant. We would have little fear of it in case such precaution could be taken. Our dosage has been from 11 to 15 grains, the average about 12 grains.

The drug comes to hand in ampoules ready for intravenous administration, prepared by Eli Lilly Company and is not yet on the open market but in passing I wish to say that they have been most courteous and liberal in supplying the clinic.

In beginning its use the clinic selected Dr. J. H. Robinson of the clinic to supervise its administration and teach the method of its administration and our success and safety in its use we feel has been largely due to his careful supervision. At the present time we use it confidently in properly selected cases. Because of its prolonged effect we do not feel it to be suitable for mouth and throat operations since the patient would unconsciously swallow large quantities of blood should there be more or less post-operative bleeding.

The drug is administered slowly about 1 c.c. from the ampoule per minute. So soon as the patient drops to sleep, which will be when from 5 to 10 grains of the drug has been introduced, 2 or 3 grains more are introduced at the same rate of speed. This insures a profound slumber within perfectly safe limits which will endure for from 6 to 10 hours. While the slumber is profound with this dosage, it is not sufficiently anesthetic to proceed unsupported with the operation, but must be re-inforced with a small amount of inhalation anesthetic, nitrous, ethylene or ether as preferred. For this purpose very little is required and relaxation is good.

The patient's mental reaction to the drug is good and all of them have expressed delight at having no unpleasant memories of the anesthetic or the operating room.

Convalescence has been smoother with few exceptions which will be mentioned later, especially for several hours immediately following operation. The patient sleeps quietly and requires much less narcotics and there is less nausea.

In waking there is sometimes delirium which in all our cases has been mild and easily controlled with 1-6 grain morphine or 1-3 grain pantopon.

*Blood Pressure* is always lowered. Average systolic 30 points, diastolic about the same; the maximum fall of the systolic is 90 points. Patients with a low normal do not seem to have the decided fall in pressure that those do with hypertension either of a high or low degree. We have noted that low pressures often become elevated soon after the amytal, increasing during anesthesia. To illustrate, showing just the blood pressure only:

Case No. 1 Normal 88-52, 10 min. 80-60, Close of operation 106-70.

Case No. 2. Normal 110-60, 10 min. 110-60, Close of operation 130-80.

Case No. 3 Normal 102-80, 10 min. 142-90, Close of operation 106-68.

Usually the blood pressure returns to normal or slightly above after 15 to 20 minutes.

*Pulse* upon administration is usually increased from 10 to 20 points, returning to normal after 15 to 20 minutes if there are no operative complications.

As the appended table will show we have used the drug as a basic anesthetic in practically a routine way as to age and condition except in young children.

Routinely we have used a preliminary narcotic of morphine grain 1-4 atropine grains 1-150. A few cases in which this was neglected, waking delirium was more pronounced.

Repeated uranalyses have shown no changes in the renal output or in its composition attributable to the anesthetic. This has been a clinical observation also. There seems also to be no discoverable blood deteriorations incident to the anesthetic.

With the introduction of any new anesthetic in routine work, the working personnel will be "jumpy." Because of this I have been called from the operating room twice only in this series of 100 cases to resuscitate supposedly serious conditions. In both instances the patient did not appear to be in any serious trouble but was a little cyanotic because of impeded respiration on account of the tongue falling backward from relaxation.

*Relaxation* is one of the advantages of

this anesthetic but it can never be had without paying the price of watchfulness.

From the cases which are summarized in the appended table, a few only will now be reported in brief detail.

*Case 1.* Mr. W. J. Age 28 years, came under the care of the clinic from a hospital in Norfolk, Virginia, to which he had been taken for multiple fractures, the result of a fall of some 40 feet. These fractures consisted in a compound comminuted fracture of the right femur, fracture right olecranon, right wrist, left wrist, and base of skull with brain damage. Condition bad, had been extremely critical and no attempt had been made to reduce the femoral fracture because of the serious condition of the patient and in addition to muscle retraction a very severe infection had occurred.

After prolonged preparation an attempt at open reduction or adjustment was made July 31, 1930, under sodium amytal, grains 12, intravenous; no preliminary narcotic for the reason that the patient had become an addict during his long illness and great difficulty had been encountered in with-drawing the drug. Condition poor because of prolonged sepsis. Temperature 99.4; pulse 84; blood pressure 100-50.

Op. begun	9:15 P.	98	R. 20	B. P.	100-80
	9:30 P.	116	R. 24	B. P.	120-90
	9:45 P.	132	R. 26	B. P.	126-92
	10:00 P.	140	R. 32	B. P.	118-90

Shock	10:10 P.	150 R.	34 B. P.	85-0
Adrenalin Caffeine	10:15 P.	160 R.	30 B. P.	0-0
Sodium Benzoate	10:20 P.	162 R.	34 B. P.	100-0

Operation discontinued, condition critical. Returned to bed and treated for shock with prompt reaction. Fully conscious in 7 hours. No memory of preceding events. Had been extremely restless post-operatively, screamed and tossed about; morphine in heavy doses necessary for control.

Continued septic from old infection of femur. Amputation advised and done after three weeks preparation. Sodium amytal grains 10 given. Amputation thigh upper  $\frac{1}{3}$ ; blood transfusion at close of operation. Awake in seven hours. Recovery uneventful. Discharge from the hospital in three weeks.

This case was probably the greatest surgical risk in the entire series.

*Case 2.* Reported because of bad condition of kidneys. Male, physician, age 78 years. Had carried a catheter in his pocket to relieve his urine for twenty years. Patient entered the hospital delirious on a cold day, December 18, 1930, thoroughly chilled from a 200 mile ride in a Ford touring car. Diagnosis was adenoma prostate, obstructive with pyelonephritis and cystitis—renal shortage 50%. Blood chemistry corroborative, uremia.

He was a fairly nourished man, condi-

OPERATION	No. Cases	Sex	Age	Dosage	P. O. Vomiting	P. O. Nausea	P. O. Delerium	Died	Cause of Death	Recovered
Hysterectomy -----	18	F	28-58	Gr. 9-13	1 Severe	1 Very slight	0	0	0	18
Salpingectomy -----	9	F	18-35	Gr. 8-11	0	1 slight	0	0	0	9
Fractures -----	2	M	18-35	Gr. 8-11	0	0	1 Mkd Shock	0	0	2
Amputation Femur -----	1	M	28	Gr. 10	0	0	0	0	0	1
Hemorrhoidectomy -----	2	F	24-25	Gr. 5-7	0	0	0	0	0	2
Laparotomy Exploratory -----	2	M	58-65	Gr. 9-10	0	0	0	0	0	2
Thyroidectomy -----	3	F	40-53	Gr. 8-9-10	1	1	0	0	0	3
Herniotomy -----	10	M	28-46	Gr. 10-15	0	0	0	0	0	10
Resection Intestinal -----	3	F	40-58 64	Gr. 7-12	0	0	0	2	Shock	1
Prostatectomy -----	3	M	60-66-67	Gr. 7-9	0	0	0	1	9 Days P. O. Uremia	2
Cystostomy -----	1	M	78	Gr. 7	0	0	Marked	0	0	1
Trachelorrhaphy -----	4	F	28-40	Gr. 10-11-12	0	0	0	0	0	4
Mammectomy -----	3	F	43-46	Gr. 6-11	0	0	0	0	0	3
Suture Gastric Ulcer -----	1	F	36	Gr. 7½	0	0	0	1	Shock	
Enterostomy -----	1	F	51	Gr. 8½	0	0	0	1	Shock	
Drainage Lumbar Abscess	1	M	34	Gr. 12	0	0	0	0	0	1
Cholecystectomy -----	7	1 M 6 F	32-60	Gr. 8-15	1	1	0	0	0	7
Appendectomy -----	12	4 F 8 M	17-50	Gr. 7-13	0	0	1 (Moderate)	0	0	12
Pelvic Op. Shortening										
Round Ligaments -----	12	F	17-47	Gr. 7 13	2	2	1 Slight	0	0	12
Fistula—Rectal -----	1	F	29	Gr X	0	0	0	0	0	1
Exeresis Nerve -----	2	F	72-79	Gr. 6-9	0	0	0	0	0	2
Osteotomy -----	1	M	28	Gr. 12½	0	0	0	0	0	1
Suture Crucial Ligament	1	M	28	Gr. 15	0	0	0	0	0	1
TOTAL -----	100		Youngest 17 Oldest 79	Average Dose Gr. XI	5	6	1 Slight 2 Marked 1 Moderate	5		95

tion poor due to above and to sepsis and pain. Temperature 100, pulse 88, blood pressure 136-70.

Operation—supra pubic cystostomy, sodium amyta grains 13, intravenous.

Unconscious	8:30	P. 80	R. 28	B. P. 110-68
	8:45	P. 100	R. 20	B. P. 140-80
Closure	9:00	P. 96	R. 24	B. P. 130-50

Delirium continued and increased until after twelve hours the patient became uncontrollable requiring constant attendance. He was stuporous with short intervals of apparent lucidity. Renal condition unresponsive to treatment.

At the end of ten days the wife insisted upon taking the patient home in the Ford touring car a distance of 200 miles. Patient put to sleep with another intravenous sodium amyta since he could be restrained in no other way, bundled into the back seat, reaching home after the long drive still sleeping. Death reported one week later. Death due no doubt to uremia.

There had been no appreciable affect on the gradually progressive uremia with which he was admitted to the hospital.

#### SUMMARY

1. All of the 100 cases showed a smooth anesthesia with better relaxation than with any inhalation anesthetic alone.

2. The mental reaction was pleasant in all cases. No disturbing memories of the surgical ordeal.

3. Nausea occurred in only six and vomiting in five. Nausea was slight in all, severe vomiting in one only.

4. The average dose was 11 grains, largest dose 15 grains, smallest 5 grains.

5. Youngest patient 17 years, oldest 29.

6. Administration must be carefully supervised and the patient looked after carefully until awake.

7. Delirium occurred in only four cases, that is 4%, in one slight, one moderate and two marked. In all it was easily controlled by morphine or pantopon and it occurred only in those patients who received no preliminary narcotic.

8. In the five deaths in this series, none could be charged to the anesthetic. Two were intestinal resections in practically hopeless cases of advanced carcinoma; one an enterostomy for a practically moribund intestinal obstruction; one from peritonitis due to a perforating gastric ulcer of

many hours' duration, and one from uremic coma in an old prostatic with advanced pyelonephritis in whom only a cystostomy had been done, the death occurring several weeks following operation.

9. A uniform fall in blood pressure of an average of 30 systolic and diastolic occurred. This tends soon to return to normal (15-20 minutes) and the pulse is increased from 10-20 points following the blood pressure back to normal.

For the careful studies in this paper, I am indebted to the chief of the anesthetic department of Wesley Hospital, Miss Beatrice Whitehead.

301 West 12th St.

#### O

#### CLINICAL STUDY OF ASCARIASIS

A. E. Keller, Horton Casparis and W. S. Leathers, Nashville, Tenn. (Journal A. M. A., Aug 1, 1931), studied the clinical conditions found in 107 cases of ascariasis in white children and in 60 cases in Negro children, with 54 white controls and 69 Negro controls. A history of disturbed sleep was obtained in 60 per cent of the cases in white children and in only 15 per cent of the white controls, while in only 20 per cent of the Negro patients and 22 per cent of the Negro controls was this complaint present. Abdominal discomfort was present in 70 per cent of the white patients and in only 7.4 per cent of the white controls. It was present in 60 per cent of the Negro patients and 30 per cent of the Negro controls. The physical conditions were those which can be demonstrated in any average group of rural children. Protuberance of the abdomen was present in 60 per cent of the white patients and in 22.2 per cent of the white controls. It was present in 33.3 per cent of the Negro patients and in 23.3 per cent of the Negro controls. There were no significant changes in the total red blood cell counts, hemoglobin or total leukocyte counts in the cases and controls as groups. The differential leukocyte counts revealed an average eosinophilia of 8.9 per cent for the white patients and 5.3 per cent for the Negro patients. Both white and Negro controls had eosinophil counts which varied from zero to 10.5 per cent. The average eosinophil count, however, for both control groups was 2.9 per cent, which is considered normal. The eosinophilia does not appear constantly in cases of ascariasis, 16 per cent of the white patients and 31.6 per cent of the Negro patients showing an eosinophil count of 3 per cent or less. No definite correlation between eosinophilia and the intensity of infestation could be demonstrated. No correlation between the age of the patient and eosinophilia could be shown. This analysis presents few observations on which a clinical diagnosis of ascariasis may be based. The parasite causes abdominal discomfort and disturbed sleep. That the parasite causes some disturbance in the host is seen by the presence of eosinophilia. The negative clinical observations that are presented emphasize the importance of the routine examination of feces in a diagnosis of ascariasis.

## EXTRA UTERINE GESTATION

JAS. L. SHULER, M.D.  
DURANT

Under normal conditions the human ovum is fertilized in the fallopian tube and passes into the uterine cavity for future development, but it, at times, happens that the ovum is fertilized and partially developed in various points of the tube between the follicle, in which it originated and the normal location in the uterine cavity and is termed extra-uterine gestation and since the illustration by Lawson Tait in 1883, has been recognized as a definite pathological condition.

We find some history of this condition, even as far back as the eleventh century, when the first recognizable description of the condition was given, but for centuries thereafter, but little or no mention was given, until so graphically illustrated by Tait in 1883.

For all practical distinction of the varieties of ectopic gestation, we may classify under three distinctive headings; as first, of tubal proper, or when the ovum becomes located in that part of the tube between the cornu of the uterus and the fimbriated extremity, in this part of the tube is where most of the locations are situated and in that ratio is the most important in consideration.

Tubo-ovarian is where lodgment takes place in the outer extremity of the tube, this rarely occurs, but when this does take place, it is most likely to result in what is termed tubal abortion.

Tubo-uterine or interstitial we may term as where the ovum is arrested and takes lodgment in the uterine wall.

Different causative conditions of pathology in the tube might be studied, which tend to arrest the progress of the fertilized ovum between the ovary and the cavity of the uterus.

Inflammatory changes in the mucosa of the tube interfering with the peristalsis and the normal capacity of this organ may be considered as the most general cause.

Peritoneal adhesions by distorting the tube and other causes, pyosalpingitis might be considered as the chief cause.

Wherever the ovum may be implanted in the course of the tube, development will begin and the process is somewhat similar

as if in the uterus, following the location of the ovum in the tube, the wall of the tube begins to thicken, due to the stimulation of the fertilized ovum, vascularity is stimulated by this excitement and as the progress of the ovum continues changes take place in the uterus and vagina, somewhat as in uterine gestation, as development continues the walls of the tube become distended to its full capacity and yields under the pressure and terminates the process.

The symptoms of ectopic gestation are most important and should be more carefully studied by the general practicing physician, as to him the responsibility rests for the first attention in the majority of this class of cases.

In most instances there has been some irregularity in the menstrual function, the period having been delayed, if there has been no missing of time, most likely, there has been some departure from the accustomed amount and continuance of the flow; a careful investigation as to the history may reveal that instead of the usual onset there has been a sudden gush of hemorrhage followed by a discharge not of the usual character.

In most instances, symptoms of pregnancy are given, such as nausea, lassitude and general discomfort, but these symptoms may be less pronounced than in normal pregnancy, the belief of the patient that she is pregnant is a point to be considered and further, if found that a period of sterility had existed for some time prior to the onset and that there had been more or less uneasiness in the region of the ovaries in one or both sides would add materially to the diagnostic symptoms.

Quite often the symptoms have been so indefinite that the patient has not consulted a physician and has not known of the impending danger until she is suddenly seized with sharp agonizing pain in the abdomen, followed by faintness, pallor, the pulse rapid and feeble, all the symptoms of hemorrhagic shock, a complete fainting collapse, these latter symptoms are so definite of the rupture of the tube that no mistake should be made as to the condition.

In most instances, after the collapse, the bleeding checks and the patient rallies, but bleeding continues, the abdomen gradually fills with blood until within twelve to twenty-four hours distention is quite dis-

tinct, the patient continuing very weak and pallid, no rise of temperature which is a very conclusive symptom to bear in mind.

#### DIFFERENTIAL DIAGNOSIS

The condition most likely to be confusing in making a diagnosis of tubal gestation is a tube distended with serum or pus and more especially the latter. The physical symptoms very closely resemble each other, that is prior to rupture, as the rupture of a tubal gestation is followed by shock and definite symptoms of internal hemorrhage and may later follow with some appearance of peritonitis, yet is very rare. So might the rupture of a pus sack give evident shock, but not of so marked a degree as from the rupture of a gestation tube with the consequent hemorrhage.

The clinical history of the two conditions will lead to the differentiation rather distinctively; in tubal gestation you will not likely have the rise of temperature, while with an infection there will have been a marked temperature, in the former, the symptoms of an early pregnancy, not in the latter, during the period before rupture, the rather soft boggy feel of the pregnant mass as distinctive to the tight, distended touch of the pyosalpinx.

Tumors of the ovary might confuse the diagnosis, but the study of the menstrual history and an inquiry and study as to the physical signs of pregnancy should lead to a correct conclusion.

#### PROGNOSIS

Every stage of the progress of extrauterine gestation must be considered one of the most appalling and perilous conditions which may threaten a woman's life. There is imminent danger in every moment that such condition exists. It is true that some cases may and do recover, but no one can know just what may be looked for while the condition continues; the termination must most certainly, come to a hazardous climax sooner or later, there is no shifting of this situation.

It is a most harrowing thought that a patient must face the eventful termination of a tubal rupture with the fearful dangers that follow. If the condition could be known in due time and proper surgical protection provided there would be a different shade to the dark picture, but unfortunately, only by chance can an occasional case be diagnosed and warning given.

Ectopic gestation furnishes a list of mortality that is shocking to contemplate.

In considering hematocoele or the accumulation of blood in the abdomen, formerly many causes were given for the existence of this condition, but operative experience has demonstrated that but one cause may be considered, ectopic gestation and the rupture of the tube or tubal abortion and except from this source there can be but rare exceptions, a possible exception might be a ruptured ovarian hematoma, but no great amount of blood should be expected from a condition of this kind. Purulent accumulations may be accounted for as from the same condition and the suppurative process has been possible from some infection entering into the accumulation by way of the uterus and through the stump of the ruptured tube.

In my limited experience I have opened the posterior culdesac for accumulated hemorrhage, but one time, this following tubal rupture, the blood had been accumulating for a week and had so filled the abdomen till it had the contour of a full term pregnancy. However, I should state that this was not the operation of choice for safety in such conditions. Have opened the culdesac for purulent accumulations in delayed cases and certainly believe this the choice operation for safety. Have noted that most of such cases have given a history of tubal gestation and rupture.

With the present knowledge of extrauterine gestation and with the confirmed results of surgical treatment, all other methods should be discarded and regarded as temporizing with the life of the patient.

In considering treatment shall vary the thought to some degree as to whether before rupture of the tube, at the time and later after the rupture.

As a result of the definite study of the symptoms and the increased knowledge and familiarity with the condition, certainly, should give opportunity for greater protection from rupture.

When an ovum is recognized in its original site in the tube a timely operation prevents the serious consequences of rupture which if left unattended must certainly happen.

The operation in this stage of the condition is very simple in technique and when under proper precautions is without risk.

The operation consists of abdominal incision in the median line, or some variation as to choice, through the structures into the peritoneal cavity, and there should be no difficulty in locating the tube mass in which the ovum is contained, this to be clamped and the entire mass removed, the clamped portion tied securely and stitched over and closure without drainage.

The opposite tube should be examined and if found to be diseased in any way, as is often found to be the cause of tubal ovation, this too should be removed; in exceptional cases it may be found necessary to remove the ovaries, or perhaps one of them, the ovaries or a part of one or both should be left if this can be without risk of infection.

#### TREATMENT AT THE TIME OF RUPTURE

In the majority of cases of ectopic gestation rupture will take place very unexpectedly, as the condition had not been thought of at all. The patient will have been seized suddenly with severe pain in one side in the ovarian region and most likely have fallen down in a faint or collapse and will show the definite symptoms of profuse internal hemorrhage.

The family physician will be called in haste, the condition should be recognized and preparations made hurriedly to save the patient's life by prompt surgical measures, but fortunately, in most instances, the hemorrhage checks from depressed circulation and the patient rallies, the bleeding will not continue so freely; it seems that nature had provided this way of escape. During this time of reaction no time should be lost in making hasty preparations for operation as soon as the patient can be carried to hospital.

It does not matter how profound the shock and collapse an effort must be made to save the patient's life, the abdomen must be opened, the bleeding arrested. It must be expected that the preparation and the operation be carried out with the usual operative care. While the arrangements are being pushed, the general welfare of the patient must be looked after, stimulants given, warmth applied. In preparing abdomen for operation only light pressure must be permitted.

As soon as the abdomen can be opened the uterus and the ruptured tube should be brought into view, a clamp placed on the outer border of the broad ligament and another one applied to the uterine end of

the tube, the clamps will control the bleeding and the tube can be removed and ligatures securely applied. The clotted blood can now be removed with the hand and the abdomen gently cleansed by moist sponging.

Under conditions of profound shock delay might be considered, but this decision would be assuming a vital responsibility.

I thought of mentioning a case of interstitial or tubo-uterine gestation that was placed under my care and responsibility. This happened in my early professional life, about the year 1895 or 96; this was at a time when we did not know so much about abdominal surgery, and especially about abdominal operative procedure for tubal pregnancy.

This patient was the wife of a physician who lived in a neighboring town. She was the mother of three or four healthy children, but she was in rather failing health; she became pregnant, as they thought, normally. She developed very distressing and alarming symptoms with no relief by the ordinary means of treatment. He, with another doctor of his town, thought to relieve her of the pregnancy by curettage, but failing to find anything in the uterus, they called me in consultation and after thorough exploration we came to realize that we had a case of tubal gestation to deal with and we decided that very soon some operative procedure must be resorted to. We decided to await further development in the case and consider the method of operation; she was at that time past two months in gestation.

The responsibility was placed squarely up to me to determine what the operation would be, and that I must do the work; they were to call me when a change was noted.

I felt some pride in the distinction and really do appreciate responsibility, but this was one time that I felt a decided dread of what might be the result; here was my friend and his family in distress, he was looking to me to assume the responsible task of deciding upon a method of operation that should save the life of his wife, and, it seemed that he felt sure that I would do that. I have never understood why he could feel that way about the matter.

I drove home feeling that the burden was with me; during the following days I had decided upon an abdominal operation,

prepared for it in every way as best I could. Time was not long until I was called to come prepared to do an operation, as his wife was suffering very much. Found her having rather severe and regular pains; something must be done, it was then getting dark and lamp lights. Upon examination found that there was the mass pressing right down beside the uterus in the vagina and through the vaginal wall was decided upon as the route to cut through to reach the tube and contents.

The doctor began the administration of the anesthetic, I was ready and waiting, but I have never known a patient to be so long in becoming anesthetized. It must have been not less than thirty minutes, when she was ready for operation. I was making a final examination, found the os very dilatable and by manipulation passed the index finger through the internal os and by exploration found a definite protrusion through the cornu into the uterus and upon this finding decided that it was best to await for natural results. I assured them that the contents of the tube was passing into the uterus and that it would pass entirely within twenty-four hours, which it did and was completely passed from the womb in due time.

Since that time I have had another case that terminated in the same way.

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**DISCUSSION: Dr. E. P. Allen, Oklahoma City:**

I enjoyed the doctor's paper very much. When a woman comes to the office, and gives a history of having missed a period of two weeks interval, heaviness in the pelvis and occasional spotting of blood, that is very important in the diagnosis of extra-uterine pregnancy. On examination, we can usually feel a mass and we should warn the patient or her husband of a possibility of ruptured ectopic pregnancy, and we should advise her to go to the hospital. The diagnosis is almost made in the history of the patient. These women must be transfused, and we must get the patient ready for transfusion as quickly as possible and while the surgeon is operating, someone else gives supportive treatment.

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**DISCUSSION: Dr. J. M. Byrum, Shawnee:**

I have enjoyed this paper very much and I do not wish to discuss it. Last week in Maude, Oklahoma, I saw a patient who

had been delivered 7 weeks previously of a normal baby. She had a splendid concalescence for 6 weeks, when she developed pelvic peritonitis and we did not know whether appendicitis was giving the disturbance or not. She had a mass in the pelvis and the lower abdomen was rather fixed and we decided to explore. We found a colored mass which I thought was a gangrenous intestinal obstruction. In working around, I turned up a placenta about the size of a six months pregnancy. She had a double pregnancy, one in the uterus and one in the tube. We merely used some packs and closed the abdomen.

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**DISCUSSION: Dr. W. P. Fite, Muskogee:**

In appendicitis and ectopic pregnancy we are much like kitchen silver, we all need to be shined up now and then. Any woman within the menstrual age who is married is a possible candidate for ectopic pregnancy or any pregnancy. The outspoken case of ectopic pregnancy or rupture is easy to diagnose. We have trouble in which we suspect one is present and we cannot prove it. We must go into the menstrual history carefully. Tubal abortion takes place about one month after pregnancy. The average rupture takes place about 6 weeks after pregnancy. Occasionally we see cases come in where they have had rupture or suspected rupture and there is no way to tell except from the history whether we have a chronic pelvic inflammatory condition or an ectopic pregnancy. We have to depend almost entirely upon the history, and sometimes the history is not worth much.

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**Dr. A. C. Hirschfield, Oklahoma City:**

I think this paper is an outstanding example of the fact that eternal vigilance in the diagnosis is the price of a life. There are so many variations in ectopic pregnancy that we cannot always be too careful. If we suspect it, feel a mass, or if in doubt, we should operate. Sometimes we cannot get permission to operate. I have had two interesting cases. Several years ago I operated a very typical case of ruptured ectopic and found the belly full of blood, and a bleeding tube. I looked at the other side, and there was an ordinary hydrocele. I removed it and it was full of blood. I found that there was placental tissue in the tube. This patient had had a previous ectopic pregnancy with encysta-

tion. One and one-half years ago I sent a healthy young woman into the hospital for operation for what I thought was acute, fulminating appendicitis. She objected to the operation because she thought she was pregnant, having missed a period. I was confident however that she had appendicitis. Upon opening her up I found a belly full of blood and clot. There was a bleeding tube so I clamped it off and removed it. I went up higher and found some matted down omental tissue and took out a gangrenous appendix with a bleeding tip. The appendix had been adherent to the ruptured tube, and had become acutely inflamed.

I sent the specimen to the laboratory without comment and the laboratory reported suppurative appendicitis or acute gangrenous appendicitis. There was a case where we had both conditions with typical signs of appendicitis.

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*Dr. Jas L. Shuler:* Closing discussion:

I wish to thank the gentlemen for their nice discussion of the paper. I appreciate it very much.

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THE SUMMER-TIME USE OF VIOSTEROL

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During the hot weather, when fat tolerance is lowest, many physicians have found it a successful practice to transfer cod liver oil patients to Mead's Viosterol in Oil 250 D.

Due to its negligible oil content and its small dosage, Mead's Viosterol in Oil 250 D does not upset the digestion, so that even the most squeamish patient can "stomach" it without protest.

There are at least two facts that strongly indicate the reasonableness of the above suggestion: (1) In prematures, to whom cod liver oil cannot be given in sufficient dosage without serious digestive upset, it is an incontrovertible fact that Viosterol in Oil 250 D is an anti-ricketetic agent of choice. (2) In Florida, Arizona and New Mexico, where an unusually high percentage of sunshine prevails at all seasons' Viosterol in Oil 250 D continues increasingly in demand, as physicians realize that sunshine alone does not always prevent or cure rickets.

Mead Johnson & Company, Evansville, Ind., invite you to send for samples of Mead's Viosterol in Oil 250 D for clinical use during the summer months to replace cod liver oil.

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ANEMIA—REPORT OF THE CASE OF  
MISS K.

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WANN LANGSTON, M.D., F.A.C.P.  
OKLAHOMA CITY

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I first saw this patient in May, 1928. At that time she presented the following picture: She was in a fair state of nutrition, but stated that she had lost some weight. Her color was most striking, being an extreme pallor with a yellowish tint. The patient was in bed and it was the story that she had been in bed unable to walk for months, the history stating that she had a nervous breakdown in August, 1927. Following this nervous breakdown the history is that she suffered pain in the muscles of the legs, pain and tingling and loss of sensation in the feet. When attempting to walk, she had the sensation of walking on cushions and she could not walk in the dark.

At the first examination sensory disturbances were evident. The patellar tendon reflexes were brisk, the calf muscles were spastic and beginning foot drop was evident. In addition to this there were psychic changes; the patient's mentality had undergone a change—she laughed and cried easily. She was intolerant to noise.

At this first examination, patient was almost in a state of extremis. Her pulse was rapid and weak. The heart tones were very soft. There was a soft systolic murmur over the base of the heart and marked edema of the lower extremities. Besides the much weakened heart muscle there was great weakness of the voluntary muscles—so much so that the patient was unable to eat sufficient food because of sheer exhaustion of the muscles of mastication.

The story is that for years the patient had suffered with indigestion. Some six or seven years prior to the onset of her present condition she had been examined by a physician and found to have achlorhydria and had been treated for achylia. At the time of first examination she had the characteristic atrophy of the lingual mucosa and had complained of stomatitis, as well as indigestion. The indigestion was evidenced by pain in the epigastrium immediately after eating and a sense of fullness in the abdomen. She was never nauseated and had had no diarrhea.

Blood examination at that time revealed a red count of approximately one million cells with about 20% hemoglobin, poi-

kilocytosis, macrocytosis and microcytosis, basophilia, and normoblasts and megaloblasts. Thus you see we have a classified picture of the Addison-Biermer type of anemia. We have in this case evidences of all the pathological processes supposed to be characteristic of this type of anemia, *namely* a profound anemia of a hemolytic type as evidenced by the icteric discoloration of the skin: fortunately for the patient, still a hyperplasia of the erythro-poietic system as shown by the large percentage of immature cells in the blood; organic changes in the posterior and lateral columns of the cord as shown by the neurological signs enumerated above, degeneration of the myocardium and of the other musculature of body and organic and functional changes in the gastro-intestinal tract as evidenced by the atrophy of the lingual mucosa and the history of stomatitis and achlorhydria.

Patient was placed on a very simple management. She was given a well balanced diet with a half pound of fresh liver a day, instructions being for the patient to eat as often and as much as possible. These instructions were because patient was unable to eat any considerable quantity at any one time because of muscular fatigue. Dilute hydrochloric acid five drams a day.

The response was immediate and almost dramatic. Within a week there was definite improvement. Within three months patient was on her feet and learning to walk again.

In November, 1928, the anemia had disappeared and the remission has been permanent to this day, the patient having had but one very slight relapse and that during a period when she decided to leave off the liver diet.

In November, 1929—one year after I first saw her—her red blood count was 4,720,000 with 87% hemoglobin, and no evidence of immature cells.

The blood count now at the present time is 4,790,000 red cells with 85% hemoglobin.

This case illustrates the beautiful, the almost dramatic results that may be expected to result from the proper management of this type of anemia.

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Follow up of this case, November, 1931: This patient was put on re-education

management, in order to train the muscles, particularly of the lower extremities. As soon as she was able to exercise she was given passive movements, massage, and was assisted to walk. At first she walked with assistance; then with crutches, then with a cane; and now she gets around with facility without any assistance, carrying on her office duties without a great deal of difficulty.

Since the above report was prepared I have seen another case with complete paraplegia, who, with similar management is now able to carry on her household duties without difficulty. This case also showed the evidences of cord degeneration.

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#### MECHANISM OF EDEMA IN RELATION TO CLINICAL CLASSIFICATION OF BRIGHT'S DISEASE (NEPHRITIS)

Henry A. Christian, Boston (Journal A. M. A., Aug. 1, 1931), has found edema a very useful basis of classification of Bright's Disease along with a time division into acute, subacute and chronic. Using these criteria he has formed a clinical classification that has been very helpful, properly to apply edema as one of the criteria of classification of Bright's disease or nephritis necessitates a reasonable understanding of the pathologic physiology of edema, and although the mechanism of edema is very complex and as yet far from thoroughly understood, recent investigation carried on in many different laboratories has added much to the knowledge of it, so that one is in a position so to formulate this knowledge as to aid in an understanding of the several types of Bright's disease. It is obvious that edema or the appearance of abnormal amounts of fluid in tissues and body cavities does not arise always from the same cause or, so to speak, does not always have the same mechanism. This permits one to subdivide edema into seven clinical varieties: cardiac, hepatic, renal, nutritional, anemic, inflammatory and anaphylactic edema. Of these varieties of edema, cardiac and hepatic edema have a very similar mechanism; in the same way renal, nutritional and anemic edemas are closely related as are inflammatory and anaphylactic edemas. In the mechanism of these several varieties of edema there are concerned six significant factors: filtration pressure, osmotic pressure, permeability of vessel wall, salt content of the tissues, lymphatic drainage and nervous control. The exact part played by each factor is not fully understood as yet, and, when they act in various combinations, great complexity may enter into the process. However, a reasonable understanding of the mechanism of edema may be obtained by analysis of the action of some of these factors in a somewhat schematic way. This relatively simple clinical classification is a practical, easily applied and useful grouping of patients with Bright's disease. Almost every patient can be placed properly in the classification after relatively simple clinical study. Hence the author commends its use.

RARE ORBITAL TUMOR IN A CHILD  
—(EPITHELIOMA ADENOIDES  
CYSTICUM)—CASE REPORT\*\*

ARTHUR H. DAVIS, M.D.  
D. L. GARRET, M.D.  
Springer Clinic  
TULSA

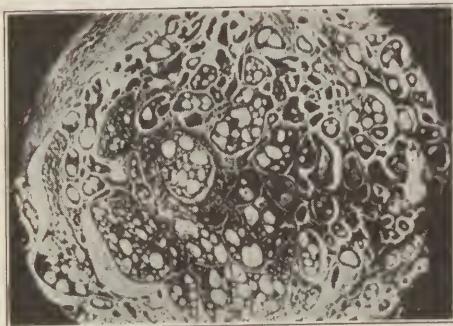


Photo Micrograph of section from tumor.

Tumors of the orbit have been divided into those which originate in the orbit but are unconnected with the globe of the eye, those which arise from the periosteum or bony walls of the orbit, those which commence in the cavities close to the orbit, and those which originate in some vascular disease within cavity of the orbit, or neighboring portions of the cranial cavity and which usually give rise to pulsating exophthalmos. Tumors arising from the optic nerve and from the lacrimal gland are included among the orbital growths.

Orbital tumors are either malignant or benign. They may be congenital or acquired, primary or metastatic. Small tumors situated in the posterior part of the orbit may be slow of growth and exist for long periods of time, without marked symptoms of their existence. Ultimately proptosis and swelling of the lid develop. These neoplasms, even when situated behind the globe, have been removed with preservation of the eye-ball for the cosmetic effect. The operation of Kronlein and of Knapp have been designed for that purpose. The former is accomplished by a resection of the lateral wall of the orbit and the latter by a temporary detachment of the medial rectus muscle.

Benign tumors, cysts and some encapsulated sarcomas can be removed according to these methods without sacrificing the eye-ball. The treatment of the major-

ity of the malignant growths require extirpation of the orbital contents.

CASE REPORT

On September 6, 1930, Mrs. K., reported to the clinic with her son, age 5 years, with the following history:

Seven months before admission to the clinic, a slight protrusion of the left eye was detected. Nothing was done and in a short time the prominence of the globe became less noticeable and was almost forgotten. Three months later the mother again observed a bulging of the left eye. The deformity rapidly increased and the globe seemed to be thrust forward and downward. Vision became poor in the left eye. The child became irritable, complained of headache, did not sleep nor eat well and lost eight pounds in weight.

*Family History:* No facts pertinent to present illness.

*Past History:* Except for attacks of the acute infections, measles, mumps, whooping cough and chicken-pox, the child has been well, until the onset of the present disability.

*Physical Examination:* The general appearance is suggestive of defective development and malnutrition.

*Head:* Scalp—negative.

*Eyes:* Right—normal to external inspection. Fundus, normal; vision 20-20. Left—there is a marked protrusion forward, and displacement downward of the globe. Pain on pressure may be elicited over the globe and orbit. The patient was unable to distinguish small objects on the floor with the right eye covered. The media of the left eye were clear, the disc was swollen 2 D, vascular and red. The arteries were small in contrast to the veins which were enlarged and tortuous. No exudates nor hemorrhages were seen.

*Eyelids:* Negative.

*Nose:* Negative.

*Throat:* Tonsils hypertrophied.

*Naso-pharynx:* Large adenoid mass.

Further examination revealed no other pathological change. The blood Wassermann was negative. Blood 9-6-30. Hbg. 85%. R. B. C. 4,620,000. W. B. C. 13,600. Differential. Polys 43. Lymphocyte 41. Monos 9. Eosinophiles 7.

Radiological examination of the skull and left orbital region revealed as follows:

\*Read before the Osage County Medical Society at Pawhuska, October 5, 1931.

"Some disturbance in outline in the lower external aspect of the orbit. No definite statement can be made as to the cause, except that we believe we are dealing with an intra-orbital tumor, probably sarcoma." Upon the basis of the above findings and history, a diagnosis of intra-orbital, extra-bulbar tumor was made.

On September 8th, the following operation was performed:

An incision was made through skin and soft tissues 1 cm. above and behind the external angular process of the frontal bone curving forward to the orbital margin, and ending about the middle of the zygoma. The incision was about 7 cm. long. This was followed by a resection of the lateral wall of the orbit. The tumor presented at once and section was taken for biopsy and was reported malignant.

Exenteration of entire orbital contents followed, leaving the lids and enough conjunctiva to support a prosthesis. The tumor had no connection with lacrymal gland, no thickening or ulceration of eyelids and no destruction of periosteum or bone. On the following day (September 9, 1931), 102.5 milligrams radium was inserted into orbital cavity for eight hours.

#### REPORT FROM THE PATHOLOGIST

"The term "epithelioma adenoides cysticum" is the current name for a glandular type of tumor formerly called "cylindroma." The cylindroma was a tumor characterized by the formation of cylinders of mucinous material. The mucin was the result of degeneration of mucous producing epithelium that was embedded in strands in a fibrous tissue stroma.

According to Ewing the true epithelioma adenoides cysticum will have associated areas of myxomatous and chondromatous tissue. If these are lacking the tumor is more properly called simply adeo-carcinoma. These tumors occasionally found in the orbit and are considered to be of lacrymal gland origin. When found in a location other than that of the true lacrymal gland, the origin is doubtless from a fetal rest of misplaced primary lacrymal gland anlagen.

The microscopic picture is characteristic. The epithelium is cuboidal and deep staining and forms cords and nests which show various degrees of dilatation with cystic content of mucinous or lymph like material. The stroma is of fibrous tissue

and may be scanty or considerable in amount in the same tumor. Sattler calls these tumors basal-cell carcinomas."

The child was seen September 4, 1931, about one year after operation, had gained about ten pounds in weight, attending school, and there were no signs of recurrence of the tumor.

I. Arthur H Davis, M.D., Eye, Ear, Nose and Throat Department. D. L. Garrett, M.D., Department of General Surgery, Springer Clinic, Tulsa, Oklahoma.

#### CARDIAC PAIN

Don C. Sutton, Chicago (Journal A. M. A., Nov. 7, 1931), studied the pericardium, the myocardium, the coronary arteries and the aorta in unanesthetized dogs, with regard to the type of stimulus required to evoke the pain response and the location of nerve endings for pain. By such experiments in the dog and monkey (*Macacus phenur*) the following observations were made: Pricking or pinching of the parietal pericardium elicits a pain response; stretching or pulling does not. Neither mechanical nor chemical irritation of the visceral pericardium evokes a pain response. Stretching of the ventricular walls or local mechanical or chemical stimulation of the myocardium fails to produce a pain response. Temporary partial or complete closure of either a coronary artery or vein or of both invariably elicits a pain response. This is true of both the right and the left coronary arteries and their branches. This pain response was shown to be due most probably to the decreased flow of blood to the myocardium (ischemia or anoxemia). The severity of the pain varies with the amount of closure of the artery and, to a greater degree, with the size of the arterial branch constricted. The pathway of the pain response is through nerve fibers that accompany the coronary arteries and lie in the adventitia of the arteries. In the dog, the pain response from the heart passes to the central nervous system through the left sympathetic chain of ganglions. The pain pathway may be severed by destroying or narcotizing the nerve fibers in the perivascular tissue of the obstructed coronary vessel or by the removal of the stellate ganglion or of the annulus of Vieussens. Under procaine anesthesia, a dilator may be passed through the left internal carotid artery into the ascending aorta or further downward into the aortic ring. Stretching of either the normal aorta or the aortic ring fails to produce pain. In view of the theory that cardiac pain arises from the stretching of an acutely or chronically inflamed aorta, and in view of the possibility that inflammation may "sensitize nerve endings," experiments are now being conducted in which inflammation of the aorta is produced prior to experimental dilation or stretching. Preliminary observations indicate that pain does not result from stretching an injured aorta. Experimentally, a pain response has been observed to occur in the dog and monkey only when the blood flow to the myocardium is diminished or stopped. On the basis of his observations the author concludes that experimentally the pain response is caused by either ischemia or anoxemia. A great mass of clinicopathologic evidence further substantiates this conclusion.

# THE JOURNAL

OF THE

## Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief  
Memorial Station, Muskogee, Okla.  
DR. P. P. NESBITT.....Associate Editor  
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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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### EDITORIAL

#### OUR NEW MOVING PICTURE FILMS

After viewing, studying and considering the films, Dr. L. S. Willour and the Committee of the Council, decided to purchase two films, one of four reels on "Application of Forceps," and one of three reels on "Eclampsia."

For the information of our membership these films are kept and serviced by the Extension Department of the State University, Norman, Mr. T. M. Beaird, Director. In order to obtain them certain re-

quirements must be complied with, and they are as follows:

As the films are very valuable they cannot be entrusted to the care of an amateur, but must be shown by highly qualified and competent operators. It must also be borne in mind that the small expense, to and from Norman to the County Society desiring to show the films, must be borne by the County Society. It must not be forgotten either that it requires a long time to get these films over the many localities in the State and therefore they will be issued in the order in which the application is filed.

A description of the films is as follows:

#### THE FORCEPS FILM

*Reel 1.* Contains a brief history of the forceps instrument with pictures of Pal-fyn, the first inventor, Simpson and Tarnier and numerous models of the forceps; the definition of high, mid and low forceps; the mechanism of the instrument illustrated by an animated drawing; a brief consideration of the indications and conditions for forceps.

*Reel 2.* Shows the low forceps operation, giving the abdominal examination, the rectal examination and a panorama of the room prepared for operation.

The operation upon the patient is now performed, after preparation episiotomy is done, shown by models and then application of the forceps is made.

*Reel 3.* Shows delivery of the child and a few hints for the conduct of the Third Stage. Then a discussion of forceps in occiput posterior position and appropriate titles. First the child's head is turned by means of the hands, this being shown on a pelvis with a fetal head and then on the living patient.

*Reel 4.* Shows the Key-in-lock maneuver of instrumental rotation, both on the pelvis and on the patient. Episiotomy is done and the baby delivered. The system of baby identification and tying the cord is shown and an examination of the parturient canal for possible injuries; an inspection of the cervix, of the episiotomy wound and a few steps of the repair of episiotomy with a picture of the baby, complete the film.

#### ECLAMPSIA FILM

*Reel 1.* Gives the definition of eclampsia and purpose of prenatal care.

Demonstration of a patient with symptoms of early toxemia; also prescribing treatment.

*Reel 2.* A case of eclampsia complicated by hyperthyroidism, showing the convulsions, jactitation, the treatment and the resuscitation of the baby.

*Reel 3.* Shows the gross post-mortem findings in the liver and the microscopic findings in the liver, kidney, thyroid and duodenum; the microscopic findings in the baby and the picture of the post-mortem of the baby's head showing liquification necrosis of the brain and a new hemorrhage in the brain.

It also shows another case of eclampsia, convulsions and treatment with the final result."

#### GRAPE WINE CONCENTRATE LOSES OUT

Despite the splendid legal efforts of Mrs. Mabel Walker Willibrandt, and despite the equivocal position in which she placed herself, (for formerly she was one of the most rabid proponents of prohibition, as well as one of the most active prosecutors of alleged illicit liquor dealings) the system by which one might purchase a keg of harmless grape juice with directions to leave it loosely corked in the basement, possibly skim off the excess occasionally, after which in a short time it would be found to be a very potable drink, the Federal Courts have decided, in substance, that this was a mere evasion of the Federal Anti-Liquor laws; therefore it may not be sold in such form any more. It seems too that one may not purchase compressed grapes to be used in much the same manner.

Senator Royal Copeland of New York, himself a doctor of no mean rating, has long charged that the authorities were "conniving" at an evasion of the prohibition law by helping to finance and sanctioning the production of grape concentrates by prohibiting home wine-making. A survey under authority of Director Woodcock, showed more than a billion gallons of wine of 12% alcoholic content have been made from California grapes, against which practice no action was taken by the Federal authorities; on the contrary it is charged that the Federal Farm Board had financed the production of

grapes and grape concentrates for home wine-making, for a loan of about \$20,000,-000.00.

#### WHY SUCH A HURRY?

After thirty years, so reads the dispatches, many of those who volunteered with Walter Reed in his fight on Yellow Fever, have received "splendid" recognition from Congress. Some of these are described "they consist of a gold medal with the name of the recipient on one side" and the words "Conquest of Yellow Fever" on the back. Congress also awarded some of the volunteers a pension of \$125.00 a month. The writer saw, not long ago, the Congressional Medal of Honor bestowed upon a worthy man after a lapse of twenty-five years. Judging from these awards to those who either died or endangered their lives in the fight on Yellow Fever, Congress intends to do something about it. All of these facts have been known to the scientific world almost since their occurrence. Monuments, hospitals and other matters have been long since erected to the memory of Reed and others, but no doubt Congress wishes to be sure about the matter before taking any action.

#### TO SOCIETY OFFICERS AND ALL MEMBERS

It becomes our duty to annually advise that all memberships expire on December 31, 1931, and that it becomes *your* duty to hunt up your Secretary, unless you pay him sufficient salary to have him hunt you up and pay your dues immediately, or at least before January 25, 1931. Notice will be sent to every County Secretary; at the last moment a list of the delinquent members will be mailed and the delinquents will be advised personally by card. But that is going to a great deal of unnecessary trouble. We know you are going to pay your dues anyway, so why not help us out by doing so at once.

Pay through your Secretary, pay by check, so that if it is lost, or any dispute occurs over it, the records and responsibility may be fixed and mistakes corrected.

### Editorial Notes—Personal and General

DR. AND MRS. FELIX ADAMS, Vinita, spent a week in October, visiting in Missouri.

DR. B. H. WATKINS, Hobart, attended the Surgical Clinics in St. Louis, in October.

DR. AND MRS. A. B. CHASE, Oklahoma City, spent part of October, visiting in Arkansas.

DR. J. R. HINSHAW, Clinton, attended the World Medical Conference in Milwaukee in October.

DR. T. R. PRESTON, Weleetka, who was injured in an automobile accident recently is reported much better.

DOCTOR C. A. THOMPSON, Muskogee, who underwent a slight operation in Muskogee has made a nice recovery.

DR. DAN L. PERRY, Cushing, has returned from Pennsylvania and New York, where he took special courses in post-graduate work.

ALVA is going through the throes of erecting a City Hospital, and of course, are having the usual trouble in the Council as to who shall construct the various parts of the building.

DOCTORS SHADE D. NEELY, N. R. Holcombe, F. W. Ewing, Muskogee; T. A. Hartgraves, Marque Nelson, Tulsa; H. C. Weber, Bartlesville, attended the Kansas City Fall Clinical Society in October.

THE TULSA ACADEMY of Ophthalmology and Oto-Laryngology met in the assembly room of the Medical Arts Bldg., November 16, 1931, 8 p. m. Dr. Roy Dunlap was elected president and Dr. Marvin D. Henley, secretary and treasurer for the coming year. This organization has been active for the past ten years.

THE EXTENSION DEPARTMENT of the University of Oklahoma, Norman, Oklahoma, began its post-graduate course at Bartlesville, November 16th; at Okmulgee, November 17th; at Tulsa, November 18th. The subject was Traumatic and Orthopedic Surgery with Fracture Clinics, and were in charge of Doctor C. B. Francisco, Kansas City, Missouri. Others connected with the Clinic were Doctors F. D. Dickson, W. B. Carrell and H. Winnett Orr.

### DALLAS SOUTHERN CLINICAL SOCIETY NEWS

Throughout the past several months, the various branches of the program committee have been diligently working on the plans and details of the program for the 4th Annual Spring Conference of the Dallas Southern Clinical Society, which meets in Dallas, March 28th to April 2nd, 1932, inclusive. A most elaborate program has been plan-

ned, and except for a few of the details, the entire program is about ready to go to press. We can truthfully say that this is the best coordinated, and most thoroughly balanced program that has ever been offered to the Medical Profession of the Southwest. Many elaborate features are planned. Twenty distinguished guest speakers, men of outstanding ability as teachers throughout the United States, have already accepted our invitation to appear in general assemblies, hospital clinics, and the popular round table luncheons. Every field of medicine is thoroughly and adequately covered, and covered in such a coordinated way that the doctor who attends will be able to arrange a course of post-graduate study far superior to any that he could obtain by making trips all over the country. The evening's entertainment throughout the Clinical Conference offers many outstanding features. On Monday evening, Dr. Edward H. Cary, President of the American Medical Association, will make the welcome address before a general assembly which will be open to the public. Dr. Thos. R. Brown, Professor of Gastro-enterology at John Hopkins University, will speak on "The Story of Digestion—Indigestion." Dr. Frank L. Lahey of Boston, will talk on "The Thyroid Gland." Dr. Jos. Collins of New York will talk on "How Can We Stem the Rising Tide of Insanity in this Country."

On Tuesday evening, there will be a symposium on "Diseases of the Biliary Tract," by Dr. Thos. McCrae, of Philadelphia, Dr. J. Shelton Horsley, Sr., of Richmond, Va., and Dr. Merrill C. Sosman, of Boston. On Wednesday evening a brilliant clinic dinner will be held, and many special features of entertainment are being arranged.

On Thursday evening two symposia will be held, one on "Arthritis," featuring Dr. John A. Kolmer, of Philadelphia, and one on "Conservation of Maternal Health," featuring Dr. Edward H. Richardson, of Baltimore.

The Clinical Society is continuing its ninety-six full one hour periods of post-graduate work, and is arranging this part of the program in such a manner as to prevent, as near as possible, conflicts between Medical and Surgical topics.

The popular Round Table Luncheons are to be held on five days, and are to meet in the following groups: Medicine, Surgery, Pediatrics, Eye, Ear, Nose and Throat, Urology, and Orthopedics.

Another special feature has been added this year in the form of Hospital Ward Rounds and Surgical Operative Clinics. These features will be conducted by local members of the Dallas Southern Clinical Society on Friday afternoon and Saturday morning.

The "Prospectus" will be ready for mailing about January 1st, and the complete program will be mailed to all the doctors of the Southwest about March 1st, 1932. Truly the Dallas Southern Clinical Society is offering the most elaborate program of post-graduate study that has ever been made available to the doctors of the Southwest. The registration fee, which covers everything, remains at the usual price of \$10.00. A number of registrations have already been received, and the various committees are confident of an attendance of at least two thousand next spring.

A cordial invitation is extended to every doc-

tor, and a hearty welcome is awaiting you. "Don't miss this Conference."

G. F. GOFF, M.D.  
Chairman Publicity Committee.

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## OKLAHOMA CITY ANNUAL FALL CLINIC

Among those attending the Annual Fall Clinics, held at Oklahoma City in November, were the following:

- Aderhold, T. M., El Reno, Okla.  
 Alexander, C. J., Clinton, Okla.  
 Allgood, J. M., Gould, Okla.  
 Anderson, J. V., Fairview, Okla.  
 Anderson, P. H., Anadarko, Okla.  
 Angus, H. A., Lawton, Okla.  
 Antle, H. C., Chickasha, Okla.  
 Baker, F. P., Talihina, Okla.  
 Bates, C. A., Lake City, Ark.  
 Barker, C. B., Guthrie, Okla.  
 Barker, Pauline, Guthrie, Okla.  
 Baker, G. W., Walters, Okla.  
 Bates, C. A., Lake City, Ark.  
 Beck, Joseph C., Chicago, Ill.  
 Billingsley, C. B., Ft. Smith, Ark.  
 Bloss, C. M., Okemah, Okla.  
 Blake, C. D., Hayes, Kans.  
 Board, J. W., Clovis, N. Mex.  
 Bollinger, D. W., Henryetta, Okla.  
 Breco, Davis, Ada, Okla.  
 Breco, Jos. G., Ada, Okla.  
 Budd, G. J., Perryton, Tex.  
 Butler, O. C., Seminole, Okla.  
 Butler, W. L., Stafford, Kans.  
 Byrum, J. M., Shawnee, Okla.  
 Carlisle, Geo. H., Dallas, Tex.  
 Caldwell, A. G., Canadian, Tex.  
 Calloway, John, Paul's Valley, Okla.  
 Campbell, J. F., Mangum, Okla.  
 Carson, F. L., Shawnee, Okla.  
 Carson, Paul C., Wichita, Kans.  
 Chalmers, J. S., Sand Springs, Okla.  
 Chandler, H. E., Mt. Vernon, Tex.  
 Clandley, H. E., Mt. Vernon, Tex.  
 Clements, O. E., Gainesville, Tex.  
 Cochems, F. N., Salida, Colo.  
 Cochran, C. M., Okemah, Okla.  
 Cochran, Roy L., Caddo, Okla.  
 Connell, D. V., Norman, Okla.  
 Connor, Edwin E., Erick, Okla.  
 Cooley, Ben H., Norman, Okla.  
 Cornet, P. T., Jr., Albuquerque, N. Mex.  
 Corrigan, R. W., Dallas, Tex.  
 Craig, H. F., Protection, Kans.  
 Crossen, H. S., St. Louis, Mo.  
 Croston, G. C., Sapulpa, Okla.  
 Cummings, I. L., Ada, Okla.  
 Cox, J. L., Ardmore, Okla.  
 Davis, John, Seminole, Okla.  
 Davis, Benjamin, Cushing, Okla.  
 Davis, G. C., Wichita, Kans.  
 Dawson, O. O., Wayne, Okla.  
 Dever, H. K., El Reno, Okla.  
 Disenhofer, F. J., Chicago, Ill.  
 Doler, C., Clinton, Okla.  
 Donald, Homer, Dallas, Tex.  
 Dorwart, F. G., Muskogee, Okla.  
 Dozier, B. E., Webb City, Okla.  
 Duffy, F. M., Enid, Okla.  
 Dunlap, E. B., Lawton, Okla.  
 Flesher, Thomas H., Edmond, Okla.  
 Emanuel, Roy E., Chickasha, Okla.  
 Eilerts, W. J., Wichita, Kans.  
 Epler, Crum, Pueblo, Colo.  
 Etter, Forrest S., Bartlesville, Okla.  
 Farley, John Baron, Pueblo, Colo.  
 Ferguson, L. W., Lawton, Okla.  
 Fisher, Roy, Frederick, Okla.  
 Finley, H. W., McLean, Tex.  
 Fite, Pat Muskogee, Okla.  
 Flack, Frank L., Tulsa, Okla.  
 Floyd, W. E., Holdenville, Okla.  
 Fox, Howard, New York City  
 Franklin, O., Broken Arrow, Okla.  
 Gable, J. J., Norman, Okla.  
 Gallagher, W. M., Shawnee, Okla.  
 Gastin, Jno. I., Shawnee, Okla.  
 Gibson, John Paul, Lawton, Colo.  
 Gibson, R. B., Ponca City, Okla.  
 Gillespie, C. P., Geary, Okla.  
 Gooch, E. S., Lawton, Okla.  
 Goodrich, E. E., Crescent, Okla.  
 Goodsheller, G. J., Marion, Kans.  
 Gordon, Douglas M., Ponca City, Okla.  
 Gordon, E. S., Dallas, Tex.  
 Griffin, D. W., Norman, Okla.  
 Guild, C. H., Shidler, Okla.  
 Hahn, L. A., Guthrie, Okla.  
 Hammond, I. W., Lawton, Okla.  
 Hemphill, Paul H., Pawhuska, Okla.  
 Hendrick, J. W., Amarillo, Tex.  
 Hancks, J. A., Wamego, Kans.  
 Hart, E. E., Canton, Okla.  
 Haynie, John A., Durant, Okla.  
 Herrick, James B., Chicago, Ill.  
 Heymann, J. A., Wichita Falls, Tex.  
 Hicks, C. A., Wetumka, Okla.  
 Hickman, R. L., Clinton, Okla.  
 Hill, C. B., Guthrie, Okla.  
 Hill, H. K., Follett, Tex.  
 Hix, J. B., Altus, Okla.  
 Hixson, J. S., San Angelo, Tex.  
 Hodgson, C. M., Kingfisher, Okla.  
 Hollis, J. B., Mangum, Okla.  
 Hood, Robt., Russellville, Ark.  
 Howell, C. H., Meeker, Okla.  
 Howell, O. E., Washington, Okla.  
 Hubbard, T. P., Edmond, Okla.  
 Hudson, F. H., Enid, Okla.  
 Huston, H. E., Cherokee, Okla.  
 Hughes, Horton E., Shawnee, Okla.  
 Humphries, F. C., Evansville, Ind.  
 Hurbut, E. F., Meeker, Okla.  
 Hutchins, C. M., New York City  
 Johnston, R. E., Bridgeport, Okla.  
 Jackson, Edward, Denver, Colo.  
 Jane, James O., Chicago, Ill.  
 Jones, James O., Chicago, Ill.  
 Judd, E. S., Rochester, Minn.  
 Kassebaum, G. E., Eldorado, Kans.  
 Keene, L. M., Pawnee, Okla.  
 Kerley, W. W., Anadarko, Okla.  
 Kern, Richard, Philadelphia, Pa.  
 Kill, O. B., Wichita Falls, Tex.  
 King, A. T., Ft. Sill, Okla.  
 Kimbrough, O. T., Wichita Falls, Tex.  
 Kniseley, H. B., Norman, Okla.  
 Kroek, Fred, Ft. Smith, Ark.  
 Krueger, J. T., Lubbock, Tex.  
 Lamb, Ellis, Clinton, Okla.  
 Lancaster, W. M., Clovis, N. Mex.  
 Lassiter, E. T., Albuquerque, N. M.  
 LeHew, J., Leslie Jr., Guthrie, Okla.  
 Leeds, Alexander B., Chickasha, Okla.  
 Leslie, S. B., Okmulgee, Okla.  
 Levick, J. E., Carter, Okla.  
 Lewis, M. L., Ada, Okla.  
 Lhevine, Morris, Tulsa, Okla.  
 Little, Jesse S., Minco, Okla.  
 Lindsey, R. H., Paul's Valley, Okla.  
 Lipe, E. N., Fairfax, Okla.  
 Livermore, W. H., Chickasha, Okla.  
 Lloyd, H. C., Hobart, Okla.  
 Marris, S. V., Chickasha, Okla.  
 Marchand, Oscar M., Dallas, Tex.  
 Marrs, S. O., Chickasha, Okla.  
 Martin, M. L., Denton, Tex.  
 Mason, W. J., Lawton, Okla.  
 Mathews, G. F., Britton, Okla.  
 Maxwell, C. L., Myra, Tex.  
 Mayfield, W. T., Norman, Okla.  
 Melencamp, N. E., Dodge City, Kans.  
 Merritt, Ina Stevens, Norman, Okla.  
 Mock, L. E., St. John, Kans.  
 Moore, R. W., Eureka, Okla.  
 Morris, Ernest H., Canadian, Tex.  
 Murphy, H. A., El Dorado, Ark.  
 MacLeod, D. R., Hooker, Okla.  
 McBride, J. S., Lyons, Kans.  
 McBurney, C. H., Clinton, Okla.  
 McCrae, Thomas, Philadelphia, Pa.  
 McCrosheal, M. R., Fairview, Okla.  
 McCarley, T. H., McAlester, Okla.  
 McGregor, Frank J., Mangum, Okla.  
 McGuire, Joseph H., Dallas, Tex.  
 McKellar, Malcolm, Tulsa, Okla.  
 Neel, W. H., Wellington, Kans.  
 Neely, S. D., Muskogee, Okla.  
 Nelson, I. A., Tulsa, Okla.  
 Nelson, Ira D., Claremore, Okla.  
 Nichols, B. H., Cleveland, Ohio.  
 Owens, M. J., Kansas City, Mo.  
 Parker, O. T., Salida, Colo.  
 Farmley, T. H., Electra, Tex.  
 Patterson, Fred L., Woodward, Okla.  
 Patterson, Jas. L., Duncan, Okla.  
 Payne, W. E., Slaton, Tex.

Petty, C. S., Guthrie, Okla.  
 Phelps, Joseph T., El Reno, Okla.  
 Points, Blair, Luther, Okla.  
 Powers, Evelyn Gass, Amarillo, Tex.  
 Ramey, W. G., Protection, Kans.  
 Ramsey, W. G., Quinton, Okla.  
 Ray, W. T. Gould, Okla.  
 Renegar, J. F., Tuttle, Okla.  
 Renfrow, T. F., Billings, Okla.  
 Roddy, Louis H., Waco, Tex.  
 Rollins, J. S., Prague, Okla.  
 Royse, Geo. T., Amarillo, Tex.  
 Ruhl, N. E., Weatherford, Okla.  
 Salmon, W. T., Duncan, Okla.  
 Sanders, T. C., Shawnee, Okla.  
 Sarchet, L. H., Wellington, Kans.  
 Schoor, W. F., Hutchinson, Kans.  
 Schmidt, Eleanor, Norman, Okla.  
 Scism, Mollie F., Walters, Okla.  
 Seay, Ders E., Dallas, Tex.  
 Seba, W. E., Leedy, Okla.  
 Siegel, G. R., Clarksville, Ark.  
 Shepard, R. M., Tulsa, Okla.  
 Shippy, Wm. L., Wister, Okla.  
 Shipman, W. H., Bartlesville, Okla.  
 Shudde, W. J., Amarillo, Tex.  
 Siegel, G. S., Clarksville, Ark.  
 Silverthorne, C. R., Woodward, Okla.  
 Smith, M. A. V., Chilocco, Okla.  
 Snedec, J. F., Pueblo, Colo.  
 Spalding, Ben, Arkansas City, Kans.  
 Spearling, Jos. W., Cimarron, Kans.  
 Speed, H. K., Sayre, Okla.  
 Spickard, L. J., Okemah, Okla.  
 Steindler, Arthur, Iowa City, Iowa  
 Stites, Hugh, Aledo, Ill.  
 Stoddard, T. A., Pueblo, Colo.  
 Stone, S. N., Edmond, Okla.  
 Stoner, R. W., Ardmore, Okla.  
 Sugg, A. R., Ada, Okla.  
 Sullivan, C. B., Colony, Okla.  
 Swope, Opie W., Wichita, Kans.  
 Taylor, E. F., Mayville, Okla.  
 Taylor, H. R., Concho, Okla.  
 Templin, Dr., Alva, Okla.  
 Thackel, Robert E., Lexington, Okla.  
 Tisdal, V. C., Elk City, Okla.  
 Tittle, Lloyd C., Dallas, Tex.  
 Trainor, W. J., Tulsa, Okla.  
 Tucker, I. N., Tulsa, Okla.  
 Underwood, David J., Tulsa, Okla.  
 Van Sandt, Guy B., Wewoka, Okla.  
 Vogt, William H., St. Louis, Mo.  
 Voth, D. A., Chicago, Ill.  
 Walker, Roscoe, Pawhuska, Okla.  
 Wallace, F. E., Chase, Kans.  
 Walsh, Joe, St. Louis, Mo.  
 Welch, C. W., St. Louis, Mo.  
 Woods, L. E., Chickasha, Okla.  
 Wharton, John T., Durant, Okla.  
 Wickham, M. M., Norman, Okla.  
 Wiley, G. W., Norman, Okla.  
 White, J. Hutchings, Muskogee, Okla.  
 Williams, C. E., Woodward, Okla.  
 Williams, Gordon Weatherford, Okla.  
 Williamson, A. R., Pueblo, Colo.  
 Willour, L. S., McAlester, Okla.  
 Wolff, E. J., Waukomis, Okla.  
 Wolff, L. G., Okarche, Okla.  
 Woods, L. E., Chickasha, Okla.  
 Woods, Ozro T., Dallas, Tex.  
 Worten, Divonis, Pawhuska, Okla.  
 Zeigel, Henry H., Collbran, Colo.

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#### MRS. ETTA J. WEBER

Mrs. Etta J. Weber, Bartlesville, mother of our President, Doctor Henry C. Weber, and widow of the late Doctor Howard C. Weber, died November 10, 1931, after an illness of more than a year. Mrs. Weber was a widow of one of the most successful and early pioneers in the oil development of Oklahoma; Doctor Weber probably drilled the earliest large well in the State.

Mrs. Weber was born in Depseytown, Pa., July 13, 1863; she moved with her family to

Bartlesville, in 1904, where she busied herself raising a family consisting of a daughter, Savilla Raymond, Doctors H. C. and Sherwell G. Weber of Bartlesville, and Mark Weber of Denver. Aside from the activities of rearing a family Mrs. Weber was prominent in the community and civic activities. She was active in the O. E. S., at all times busy in the work of the First Methodist Church and taking great interest in the affairs of the American Legion Auxiliary.

The Journal takes this occasion to extend its regrets to the bereaved family.

#### DR. WALTER CLAUDIUS BRADFORD 1878—1931.

Walter C. Bradford was born May 8, 1878, in Council Grove, Kansas, and moved to Oklahoma City in 1889, with his parents. He graduated from High School in Oklahoma City, and from the Kansas City Medical College. He practiced medicine in Shawnee, Oklahoma, from the year 1904, until his death. He became the Secretary of the Pottawatomie County Medical Society in the year of its origin, 1905, and continued in that office for several years. He was elected President of that body in 1912, and again in 1921. He was selected as Councillor of this Medical District in 1911, and held that position until 1927. He was President of the Oklahoma State Medical Association in 1910. He was a member of all Masonic bodies in Shawnee, of the Consistory at McAlester, and of the Shrine in Oklahoma City. He was an active member of the First Methodist Church, of Shawnee. On October 2, 1900, he was married to Miss Ida Dodge; and of this union there were born three sons. He passed this life the morning of November 24, 1931.

The lives of men are known for two things, "Their religious faith, and what they have done." The circumstances of life often mar the deeds of men so the appearance of their faith is not so well seen of men, and it often takes a close personal friendship to determine the quality of the faith of our friends.

We wish this day to commemorate W. C. Bradford, M.D., in the light of this short summary above given. Those of us who have had close personal contact with him will agree in this that we are about to say.

The medical savant is apt to be looked on as a man who is a mere mechanical adjunct of healing to a social structure, and thought of to have very little of the human in him, yet more often than not he is the rarest of the human species both in humanity and human friendship.

We like to now remember W. C. Bradford in this rarest of human parts, a very human man and a friend. There was in him when

at his best that human man to man friendship, which made him approachable to all his friends. His humanity and friendship were of the kind that staid firmly all through the trials to the last. We respect his memory this way in this last homage we pay him, forget his faults.

In social morals, he was of the fine high type of which chivalrous gentlemen are made. He failed to see moral deflection of social life in others. His own character thus because of its high standards being blind to the deflections of others. His conversation was always chaste, filled only with the reflection of his own socially moral chastity.

The hurt of his own personal manners was to himself and none other. The circumstances of his own suffering we do not so much know, and if we did know them we would think with gentler compassion on his personal eccentricities which hurt him alone.

His medical work is here as a record with the triumphs and struggles that mark every man in this profession. He went fearlessly against the heavy odds, that every man of the profession must meet and left a record here with us by which we may profit. When a man faces the heavy odds of this work he must in every case bow at last to a benevolent Providence and a kindly nurse in nature for the final analysis of the struggle and the odds against the Doctor. Dr. Bradford did and has done so, and in the realm where he now is, he may learn a new "Materia Medica," not of bodies, but perhaps of minds and spirits.

We could not think this memorial complete without a mention of the religious attitude of our friend. This attitude surfaced itself in the membership with the First M. E. Church, North, but the surface only marks the inner heart of which the outward church membership and loyalty to that are mere signs and symbols. W. C. Bradford by those outward signs and symbols and his chaste conversation and high social morals gave us plenty of evidence of his inner abiding faith in God and the atoning grace of God's plan to redeem men. Religion is never completely measured by single acts and deeds of men, but by the steady flow of life toward a consummate of its function when we measure him this way we find purity of faith and purpose.

It looks like with all our boasted healing skill that death is sure and we all have to go that way and when W. C. Bradford forgot to wake the other morning it is just a gentle reminder that we all must come not to that as an end, but as a transition to that better thing to which he has attained. We call it death, he knows better, he is on the other side.

Let me close this by quotation of the Elder Cyrus in talking with his son at the time of Cyrus' death, "I would not have you to forget, my son, that my soul goes not in

oblivion, although you cannot see it. You could not see it while I lived, but you knew it was with me because of the things it did, and because it worked while my body lived, makes it clearer that it will work more fully when it is not handicapped by the frailties of this feeble body of mine. So you may think of me then as alive and working in Soul after my earthly dissolution." "Cyrus the Great."

We like to honor our friend in this way for after all is said and done these questions come to us and will not be put down.

J. A. WALKER, M.D.,  
Chairman the Committee,

JOHN I. GASTON, M.D.,  
President the Society,

F. C. GALLAHER, M.D.,  
Secretary-Treasurer.

#### JAMES D. SCOTT, M.D.

Dr. James D. Scott, pioneer physician of Holdenville, died at Holdenville in November, after an illness of several months.

Doctor Scott was born in Pike County, Illinois, May 23, 1872. After completing his high school education there, he attended Eureka College in Chicago for two years, after which he began his medical course in St. Louis, Missouri. He later took a post-graduate's course and then came to Indian Territory, where he settled in Holdenville. He began his practice here in June, 1901. He practiced medicine continuously since that time until the past year when he retired from active practice because of ill health. He married Miss Pauline Lowell in 1910.

He was a charter member of the First Christian Church of Holdenville and a prominent member of the Modern Woodmen and Knights of Pythias.

Funeral services were conducted by Rev. Geo. P. Rossman, of the First Christian Church. He is survived by one daughter, Mrs. Jane Vannoy, and one son, Jimmie Scott.

#### RESOLUTION

We bow with submission to the rules and edicts nature has decreed on the physical being of the human family. While we bow in submission our hearts are made sad at the removal by death of our friend and member Dr. J. D. Scott, and most fraternally resolve that our hearts go out in tender sympathy to the grief stricken family in this, their hour of sorrow, and

We do further resolve that we feel and realize that in the death of our member,

Dr. Scott, we have lost a friend of chris-tain integrity and fidelity to principle.

Resolved further that a copy of this reso-lution be read at the meeting of the society in December, a copy be given the family, one to the Journal and one to each of the local newspapers at Holdenville for publication.

Committee,

T. B. FELIX,  
W. E. FLOYD,  
D. Y. McCARY.

### SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from  
LeRoy Long Clinic  
714 Medical Arts Bldg., Oklahoma City

Crile, George W.: Anesthesia. The American Journal of Surgery. Volume 15, No. I, Page 288.

The author points out that regardless of the question as to whom the honor for the introduction of anesthesia should go, "The fact remains that with the fourth decade of the nineteenth century began a new era in surgery, paralleled only by the aseptic era initiated by the work of Pasteur and Lister."

Reference is made to the introduction of cocaine by Koller in 1844, of novocain by Braun in 1905, of the combination of oxygen and nitrous oxide by Andrews in 1868, the introduction of the hypodermic syringe by Alexander Wood in 1853, and the work of Matas in developing the use of local and regional anesthesia in general surgery.

Regarding methods, the statement is made that the trend in general is away from "The harmful, deep inhalation anesthesia toward lighter, less harmful anesthesia, analgesia and regional and spinal anesthesia." In this connection, the au-thor refers to experiments which showed that shock did not follow trauma in territories where the nerve supply had been blocked. He speaks of the value of morphine and of sharp dissection in surgical operations, pointing out that his method of anoci association "is accomplished by such a combination of anesthetics, narcotics, environmental management and surgical technique as is suited to the individual case."

Of the anesthetic agents given by inhalation, nitrous oxide plus oxygen is preferred, but even this should rarely be carried to a point beyond analgesia. This is particularly true in bad risk cases, for "The more serious the risk, the less the amount of inhalation anesthetic that should be administered," because it interferes with the internal respiration, especially the internal respiration of the liver, the myocardium and the brain."

The value of regional anesthesia for operations on the head, the neck, the thorax and the upper extremities is indicated, attention being called to the fact that a thorough knowledge of anatomy is essential for its successful application. In these and other situations it may be advisable to

combine regional block with nitrous oxide anal-gesia. There is a caution in connection with regional anesthesia in patients with cardiac dis-ease or impaired renal function.

Spinal anesthesia is recommended as being of especial value in bad risk cases, in lower extremity and lower abdominal operations, but the au-thor quickly follows with the statement: "Spinal anesthesia is not free from danger since it en-croaches upon vital functions. It should always be used by experienced operators; the Trendelenburg position must always be employed; the blood pressure must always be controlled." In view of the apparent tendency to disregard the effect upon arterial tension, the following state-ment by the author is strikingly significant and important: "The greatest menace of spiral an-esethesia is the lowered blood pressure. To ob-viate this danger, ephedrine in 1 grain dosage is given before the injection of the spinocain and if necessary the dose is repeated during and even after the operation."

The article is concluded by calling attention to the usefulness of morphine, combined with scopolamine or atropine at least an hour before the operation, except in the aged, the very young and those profoundly feeble.

—LeRoy Long.

Jones, David T.: The Diagnosis and Principles of Treatment of Carcinoma of the Colon and Rec-tum, Annals of Surgery, November, 1931, Vol. XCIV, pages 860-870.

Many of the classical symptoms of large bowel malignancy, such as ribbon stool, constipation, loss of weight and pain, are of little value in making an early diagnosis. An early diagnosis is essential in order to achieve a successful re-sult by any operative procedure. "If it could be taught that any change in bowel habit or sensa-tion or bleeding from the rectum is suggestive of malignant disease of the colon or rectum, it would not be necessary to burden physicians or students any further. The often repeated caution to be-ware of complacently assigning piles as cause of bleeding is forcibly stated. He says: "If car-ci-noma of the rectum is suspected the diagnosis can be made in 100% of the cases presenting themselves, by digital or sigmoidoscopic examina-tion." He feels that X-ray is less reliable and should not be used until after the above examina-tions have been done by a competent man. Some possible sources of error on the sigmoidoscopic are pointed out.

A plea is made for a thorough operation in which the growth is removed with a wide margin at either side and the area of lymphatic drainage removed when possible. The combined abdomino-perineal operation is the method of choice. The Mikulicz procedure is frequently not applicable because it does not permit removal of enough bowel and mesentery. The sphincter should be removed and a colostomy made. The prevalent inadequate or local operation is probably due to the abhorrence of patient and surgeon for a colostomy when the growth has not been completely removed. Jones feels that his patients who have had complete removal of the growth after colostomy do not have this feeling of abhorrence for the colostomy, and, when properly instructed in care of the colostomy, usually lead happy and useful lives.

Although standardization of technique in resections of the colon seems impossible, he feels that two fundamental principles can be agreed upon.

1. An adequate blood supply is necessary. "The best suture material and the best suture known, the most carefully done anastomosis or an aseptic anastomosis are of no value if the blood supply is deficient."

2. The line of sutures must be relieved of intra-intestinal pressure. The surest way to prevent pressure on the line of suture in the left colon is to make a colostomy a short distance above the anastomosis. However, a cecostomy is effective and has the advantages of not interfering with the field of operation and not requiring a secondary operation for closure. It also is sufficiently effective as a means of emptying the bowel before operation.

So much stress has been laid upon the aseptic method of anastomosis by some authors that the two most important factors in good results, blood supply and the absence of pressure on the line of sutures, have been overlooked.

—LeRoy Long.

**Kreiselman, Joseph:** Avertin Anesthesia from the Anesthetist's Standpoint; A Resume of 18 Months Experience, *Annals of Surgery*, November, 1931, Vol. XCIV, Page 885.

The author's experience with this form of anesthesia has consisted in 1500 cases. He feels that it is a basal anesthesia. For this reason a trained anesthetist should be in charge of the patient. The choice of the supplemental anesthetic (ether, nitrous oxide, oxygen or ethylene) should be left to him.

He outlines the proper method of preparing the solution before rectal administration, and explains the way in which correct dosage is estimated. His dosage has varied from 60 mg. to 120 mg. per kilo of body weight.

He feels that avertin has filled a great void in pediatric surgery. It is particularly suitable in operations upon the larynx, cauterization of the tongue, thyroid surgery, where it is necessary to operate during acute alcoholism and when a general anesthetic is distasteful to the patient.

The contra-indications are given as follows:

1. Diseases of the liver and kidneys.
2. Advanced tuberculosis.
3. Extreme cachexia.
4. Acidosis.
5. Use with care when elimination is delayed and in debilitated and dehydrated elderly patients, and in the obese.
6. Ulcerative diseases of rectum or colon.

He thinks that the many asphyxias, many irritated colons, and several deaths reported from Germany were due to the high dosage, overheated solutions and absence of trained anesthetists and nurses.

**Comment:** During the past year we have been delighted with avertin anesthesia in several very toxic goiter cases upon whom we have operated. We have not observed any unpleasant complications. We believe, however, that it is impossible

to place too much emphasis upon the precautions necessary, particularly in preparation of the solution and in careful maintenance of a clear airway after the operation.

—LeRoy Long.

**Ward, George Gray and Farrar, Lilian K. P.:** Reradiations in the Radium Therapy of Carcinoma of the Cervix Uteri. *American Journal of Obstetrics and Gynecology*, October, 1931, Volume XXII, Page 543.

The authors outline the prevailing views upon repeated radiations over long periods of time in the treatment of carcinoma of the cervix. They also review the method used in the Woman's Hospital and the character of their "follow up." In analyzing 170 cases of carcinoma of the cervix they found that nearly fifty percent of the patients had more than one radium treatment and twenty-six and five-tenths percent of these patients that were re-radiated lived five years or more.

This demonstrates that "reradiation in carcinoma of the cervix is of definite value in local metastases." They speak with emphasis about the uselessness of depending upon subjective symptoms for early recognition of recurrences and they feel that their good results depend wholly upon frequent examinations at regular intervals by the surgeon who applied the radium. Only in this way do they feel that early recognition and successful re-radiation can be accomplished.

—Wendell Long.

**Lynch, Frank W.:** A Five to Fifteen Year Follow-up Study of One Hundred Ninety-two Cervical Cancers. *American Journal of Obstetrics and Gynecology*, October, 1931, Vol. XXII, Page 550.

This autor reviews 192 patients with a total five year cure in all cases seen of 19.3 percent. He includes 43 cases that had been operated elsewhere and were admitted with recurrences. His proportion of early cases is large.

Interesting comments are made concerning the choice and method of therapy. In a small percentage of cases, operation and radium were used, but in most radium alone was employed.

—Wendell Long.

**Crossen, H. S.:** Conclusions From a Study of Five-year Cures in a Series of 121 Cases of Carcinoma of the Cervix Uteri. *American Journal of Obstetrics and Gynecology*, October, 1931, Volume XXII, Page 559.

This author reviews the five year results of 121 cases of carcinoma of the cervix and gives at some length his conclusions on effective treatment of this disease at the end of ten years experience with radiation therapy. The three patients in groups 1 and 2 (early carcinoma) all survived, but the most significant fact is that of the large group of 108 with extensive para-metrial involvement with fixation of the uterus, 21 percent were cured. He points out that the "cell type" apparently does not have a great influence upon the survival of the patient, certainly very little compared to the clinical classification as to extent of growth.

His conclusions at the end of 10 years experience with radiation therapy concern:

1. The treatment for very early cases wherein he considers at some length the choice of operation, and radiation, or radiation alone.

2. The essentials of effective radium treatment in which he emphasizes: a. Careful study of special conditions present in each case. b. The giving of the maximum dose at the first application. c. Supplementary deep X-ray therapy. d. Careful follow-up of cases and treatment of any local spots of recurrence.

3. Prophylaxis of carcinoma of the cervix. He reiterates that, "The time to cure cancer with the greatest certainty is before it starts." "Great pains are taken, in cases of chronic cervicitis, to detect the first signs of cancer, so that treatment for cancer may be promptly instituted; whereas a safer plan is to remove the chronic cervicitis promptly before it becomes cancer."

He points out that chronic cervicitis may be cured by simple conical excision of the affected area of the cervix and thus cancer is prevented.

Comment: One cannot emphasize too strongly these closing statements of Dr. Crossen's article in which he reviews the tremendous importance of prevention of carcinoma as a means of combating the inroads of this disease.

—Wendell Long.

## DERMATOLOGY AND SYPHILOLOGY

Edited by James Stevenson, M.D.  
615 Medical Arts Building, Tulsa

**Sensitizations. Regional, Seasonal, Dietary and Other Influences Accounting for Variations and Fluctuations.** Sulzberger, Marion B., and Mayer, R. L., Arch. Dermat. and Syph., 24:537 (October), 1931.

The authors comment on the frequent inability of research workers to verify one another's results, result in confusion and disputes. They performed experiments on guinea-pigs, identical in every way, sensitizing the animals to one brand of neo-arsphenamine by intradermal injections. These experiments were done in Breslau, Zurich, and New York City, and whereas in Breslau 98 per cent of the animals became skin sensitive to neo-arsphenamine, and fifty per cent in Zurich, none became hypersensitive in New York City. The influence of diet is apparently an important factor, for those animals fed green summer (alkaline ash) fodder were notably less sensitive to not only neo-arsphenamine, but paraphenylenediamine as well, than those fed dry (winter) fodder. Other factors causing widely varying experimental results obtained in the study of hyper-sensitiveness and allergy are mentioned in the article, and the impression is left that we still have much to learn about these subjects.

**Jugular Compression. An Adjunct in the Treatment of Syphilis of the Central Nervous System.** Smith, Dudley C., and Waddell, J. A. Arch. Dermat. and Syph. 24:727 (November), 1931.

The Hemato-encephalic barrier prevents the ordinary anti-syphilitic remedies in use from

penetrating into nerve tissue and the spinal fluid in appreciable concentration. Suggested explanations of this barrier are: (1) the atypical vascular distribution and the brain and the absence of lymphatics, (2) the inelasticity of the covering of the brain and the spinal cord, (3) the selective secretory (or dialyzing) action of the choroid plexus.

Jugular compression promptly increases the intracranial pressure and the rate of flow of spinal fluid, and the authors' experiments were based on the hope that the passive hyperemia produced could cause a pouring forth of arsphenamized antisyphilitic serum into the ventricles, the subdural spaces and the parenchyma. The appliance used consisted of two leather pads attached to a woven strap which had an adjustable buckle. This was fastened about the neck with sufficient compression to cause engorgement of the veins of the face, but not to affect the pulsation of the temporal arteries; and left in place for thirty minutes following the intravenous injection of arsphenamine. Spinal fluid was then removed and tested quantitatively for arsenic by the Gutzeit method. In twenty-two control cases the average spinal fluid arsenic content was .002 mg. per five cubic centimeters, while in the eighteen cases in which jugular compression was used, the arsenic content averaged .0031 mg. per five cubic centimeters. It is suggested, therefore, that jugular compression may prove a useful adjunct in treatment in selected cases of neuro-syphilis.

**Lupus Erythematosus Disseminatus.** Mook, W. H., Weiss, R. S., and Bronberg, Leon K. Arch. Dermat. and Syph. 24:786 (November), 1931.

This article does not lend itself readily to abstraction consisting as it does of the detailed report of thirteen cases of disseminated Lupus, with nine deaths, and four autopsies. In ten of these cases marked involvement of the serous membranes occurred, in the form of arthralgia (serous and fibrinous arthritis?), pleurisy, pericarditis, localized peritonitis. Leucopenia is stressed as an important diagnostic symptom. Excellent photographs show the skin manifestations, three of the cases being of the Senear-Usher type.

The authors discuss the old question the etiologic relationship of this disease to tuberculosis, and agree with MacLeod that disseminated lupus erythematosus is a toxic or a septic cutaneous symptom, probably not tuberculous.

**A Study of The Blood Picture in Congenital Syphilis and The Effect of Anti-Syphilitic Therapy upon the Hemoglobin and Cellular Elements.** Pearlman, H. H., and Wright, C. S. Am. J. of Syph., 15:499 (October), 1931.

A study was made of the blood pictures in a number of congenital syphilites treated with arsenicals, with bismuth, or with both. The authors believe that the secondary anemia present in congenital syphilis is like all anemias associated with chronic infectious disease, and that the degree of anemia may be no more and no different from that found in supposedly healthy children. No reliance can be placed upon the degree of anemia, nor does the study of individual cells reveal anything of diagnostic or prognostic importance. In previous studies mercury had been proven to be a hemolytic agent, but the effect of

arsenic and bismuth or a combination of the two on the secondary anemia and upon the differential count was variable and inconsistent and no definite conclusions were drawn.

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D.  
304 Osler Bldg., Oklahoma City

**Studies on the Incidence of Tuberculous Infection.**  
Elizabeth A. Leggett and F. F. Callhan. *The American Review of Tuberculosis*, August, 1931.

Tuberculosis surveys in the schools are useful not only as a means of statistical studies of the incidence of infection but also as a means of early diagnosis of unsuspected disease. This one is especially interesting since it shows that the presence of a teacher with active pulmonary tuberculosis is a definite source of infection to the children. The Minnesota groups studied in this series consist of 259 students from the St. Marks School, St. Paul; 340 students from the Lincoln and Erickson Schools and the Johnson High School, St. Paul, and 265 students from the Pine City grade and high schools. One St. Paul group came from a good and one from a poor residence district; the Pine City group lived either in the small town or in the surrounding farming community. The Mantoux tuberculin test was used followed by physical and X-ray examinations on all positive reactors.

Of the 563 St. Paul children examined 131 or 23 per cent reacted positively to tuberculin. Of the 125 children X-rayed 39 or 29 percent showed evidence of pulmonary infection; there were no diagnoses or active tuberculosis in this group. In Pine City 265 were examined of whom 43 or 16 percent reacted positively. Among the grade school group 4 percent were positive as compared with 8.7 percent in St. Paul. In the high school group 25 percent were positive as compared with 13.5 in St. Paul. Of the 42 X-rayed, 29 or 69 percent showed evidence of pulmonary infection and there were 3 diagnoses of active tuberculosis in this group. It was in the Pine City High School that a teacher, active in athletics, was ill with a "cold" with cough and expectoration for 2 months before being diagnosed and treated the year before this study was made. The incidence of infection in this series is less among the grade school children in Pine City than in St. Paul and much less than that of any other series except two other rural ones. However it was much higher in the Pine City High School where there was a known source of infection than in the St. Paul high school and there were no active cases among the city group while 3 were found in the much smaller Pine City High School group.

The authors also made a study of autopsy material making a careful examination of the lungs in cases of death from causes other than tuberculosis. This showed the presence of undiagnosed tuberculous lesions in 42 percent of their series.

Each method of studying the incidence of tuberculous infection has its faults—the school children being younger may show a lower incidence while those patients coming to autopsy, being usually from the poorer classes, may show a

higher incidence than is true of the community as a whole.

**Vitamine D in Bone Tuberculosis in Children.** H. D. Grayzel, M. J. Shear and Benjamin Kremer. *The American Review of Tuberculosis*, August, 1931.

This study was undertaken to determine the effect of an increased intake of vitamine D on tuberculous infection of bone. Eighteen tuberculous children ranging in age from three and one-half to twelve years of age were divided into two groups, nine each—one test and one control group—17 had active bone tuberculosis, 1 had tuberculosis of the skin. All received a well-balanced diet adequate in all respects including its vitamine content. All also received daily 2 tablespoonsful of preparation of maltine and codliver oil. The treated children received in addition 4 mgm. daily of irradiated ergosterol during the first 4 months and 7 mgm. daily for the next 8 months, this being equivalent to about 0.6 to 1.0 litre of codliver oil daily. Three children of the control group and one of the tested group were allowed to be out of bed and out of doors several hours daily, the others were in beds on a porch the greater part of each day. Other treatment consisted in the various types of immobilization or rest in bed, daily salt baths and dressings, no operations were performed. During this investigation periodical physical examinations, blood-pressure readings and urine examinations were made, radiograms taken, and whenever possible monthly weights were recorded. Blood-serum calcium and phosphorus were determined at the end of 6 and 12 months.

The study showed that the addition of irradiated ergosterol to an already adequate and well balanced diet produced no noticeable acceleration of the healing process in bone tuberculosis; also that large doses of irradiated ergosterol caused no toxic symptoms, no observable pathological calcification and no increase above the normal in concentration of serum-calcium or of serum-phosphorus.

**Intrapleural Pneumolysis.** Lincoln Fisher. *The American Review of Tuberculosis*, September, 1931.

All tuberculous complications tend to improve with the pulmonary improvement resulting from more adequate compression. Intrapleural pneumolysis is a necessary adjunct to artificial pneumothorax. The galvanocautery affords a reasonable and safe method for adhesion cutting with little danger from bleeding and cauterizations lasting as long as 2½ hours are well tolerated with little reaction. In the diffuse, multiple fold type of adhesion which is most apt to contain lung tissue or large blood vessels where complete cauterization is impossible, a partial cauterization in the form of a V notch extending towards the chest wall is very satisfactory as subsequent pneumothorax refills serve to peel the lung away from the parietal attachment and the patient thus gains the benefit of a complete collapse.

Twenty-eight and six-tenths percent of the pneumothorax patients at the Waverly Hills Sanatorium, Waverly Hills, Kentucky, since July 1930, proved suitable for cauterization. All but one has been definitely benefited by intrapleural

pneumolysis and 65 percent of these cases were given a perfect collapse. All the patients have noted a marked diminution in both cough and sputum and the majority have shown a tendency for the sputum to become negative with an occasional positive test. Marked symptomatic improvement has occurred even when cavities have been only partially collapsed. Five cases developed a small postoperative effusion; one patient had fluid prior to operation which persisted afterward; in nine cases no postoperative effusion whatever developed, one case with a pre-existing tuberculous empyema passed an uneventful postoperative course with perfect wound healing and as decided improvement as any case in the series.

**Tuberculosis in the Negro.** Benjamin L. Brock and Sam Black. *The American Review of Tuberculosis*, August, 1931.

Acute exudative tuberculosis rarely seen as such in the white race is not uncommon in the Negro and the mortality rate among the Negroes in many localities is 3 to 4 times as great as the rate for the white race in the same locality.

The monocyte in the peripheral blood plays by far the most outstanding part in the exudative type of tuberculosis. Here it is constantly elevated above the normal level and shows no fluctuation above and below the normal line as is the case in chronic progressive disease. This indicates continuous spread with no evidence of an arrested phase of the disease. Elevation of the lymphocytes in tuberculosis is definitely associated with the arrested phase of the disease and is a manifestation of the immunity process. It is believed that the lymphocyte acquires a qualitative change following continuous reinfection throughout the preadult period and thereby aids in preventing growth of bacilli in the body and in causing their disintegration. The elevation in neutrophiles indicates a reaction to the absorption of toxic products of abscess formation. A comparative lack of continuous reinfection of the Negro race with tuberculosis throughout the early years of life is believed to be a definite factor in altering the immunity process and modifying the subsequent development of the disease. Lack of proper absorption of ultraviolet rays by the Negro race may also be a factor in altering the immunity mechanism in the body.

**The Influence of the World War on Tuberculosis Mortality in Civilian Populations.** Walter W. Lee. *The American Review of Tuberculosis*, September, 1931.

The influence of war on tuberculosis mortality is studied on the basis of the experience of Germany and of the United States as recorded in their tuberculosis rates from 1900 to 1928. Massachusetts data are used to compare with German date by age and sex groups.

The rate in the United States rose slightly but significantly during the war period and fell rapidly after the Armistice to a rate about 20 per cent below the prewar trend. The German rates in 1918, exceeded those of the United States by 55 percent. Following the war the rates dropped until 1921, to rise again during the financial crisis of 1922 and 23 to a rate 62 percent greater than that of the United States in

1923. Following 1923, German rates fell to the prewar trend in 1927. The peak in the German rate in 1918, corresponds to the industrial activity and financial depression accompanying the inflation of the German mark. The fall in rates following 1923, coincides with the financial recovery in Germany. Germany apparently lost approximately 280,000 civilians from tuberculosis more than would have died had the war not occurred.

The available data do not indicate that the influenza epidemic of 1918, exerted much, if any, influence on the tuberculosis mortality.

**Intrapleural Pneumolysis.** B. Noland Carter. *The American Review of Tuberculosis*, September, 1931.

Open intrapleural pneumolysis is preferred to the closed method in all cases except possibly those with thin string adhesions since it is a clean-cut surgical procedure enabling the operator to expose the adhesion and to determine its attachments, location and character much better than is possible thru a thoracoscope. It also gives him much better control of the situation in case of hemorrhage and there is less chance of contamination due to cutting into the lung. The author describes a method of freeing adhesions by open pneumolysis which has been used successfully in 4 cases he reports.

**Pregnancy and Bilateral Phrenic Exairesis Post-partum.** Arthur W. Duryea. *The American Review of Tuberculosis*, September, 1931.

The author reports a case of far advanced pulmonary tuberculosis with tuberculosis of the larynx in a woman six months pregnant. A simultaneous bilateral pneumothorax gave her almost complete symptomatic relief during the last 3 months of pregnancy. Following delivery a bilateral phrenic exairesis was done in order that the benefit of diminished diaphragmatic excursion from the intra-abdominal tumor might not be lost. The patient was in good condition a year later during which time she had been on a strict sanatorium routine with complete vocal rest and pneumothorax treatments. The baby was removed from the tuberculous environment immediately after birth.

## BOOK REVIEWS

**Tables of Food Values,** By Alice V. Bradley, B.S., Supervisor and Instructor of Nutrition and Health Education. State Teachers' College, Santa Barbara, California. Cloth, Price \$2.00. The Manual Arts Press, Peoria, Illinois.

Alice Bradleys' book on Tables of Food Values seems to be concise and understandable. I like the way it is divided into average serving figures and 100 gram portion figures. I am sure it will be a great help to dietitians as it is a very thorough and complete book on food values.

**Surgical Pathology of the Skin, Fascia, Muscles, Tendons, Blood and Lymph Vessels.** By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, Professor of Surgery, University of Kansas. Cloth, 260 illustrations, 301 pages, J. B. Lippincott.

cott Company, Philadelphia, Montreal and London.

This is the second of a series of works on pathology, of various types of tissues; the first being *Surgical Pathology of the Diseases of Bones*. There are now in preparation: *Surgical Pathology of the Genito-Urinary Organs*; of *The Female Generative Organs*; of *The Gastro-Intestinal Tract*; of *the Peritoneum*. In addition to this we have the promise from the pen of Dr. Hertzler of *Monographs on the Mammary Gland*; *Diseases of the Neck, Mouth and Jaw*, and *the Thyroid Gland*. As before noted Dr. Hertzler has behind him years of one of the busiest professional careers in the United States. He is tremendously energetic and an observer of the highest type. This work on pathology of varied conditions is finely illustrated, accompanied by text and case reports and should prove of undoubted value to the student and practitioner of medicine and surgery. Professor Hertzler is to be commended upon the selection of the type of work which will prove of great use and interest to all who are fortunate enough to secure the volume.

**Gynecology and Urology for Nurses.** By Samuel S. Rosenfeld, M.D., F.A.C.S. Adjunct Obstetrician and Gynecologist Lebanon Hospital, New York City; Lecturer in Obstetrics and Gynecology to Lebanon Hospital School for Nurses; Diplomate of the American Board of Obstetrics and Gynecology. Illustrated. Cloth, 230 pages. William Wood and Company, New York, 1931. Price \$2.00.

The gynecologist and urologist is constantly in need of skilled assistance, if he is to do the amount of work most of the men in this specialty are engaged in. It therefore follows that anything making for better preparation and understanding on the part of the nurse will be helpful to the physician. The writer attempts to emphasize in his work what the nurse most needs to know in order to be able to aid her patient intelligently. He disclaims any intention of attempting to make doctors of nurses but had in mind the mature, eager, earnest and absorbing heart and mind of the flower of our womanhood—The Nurse. The work naturally takes into consideration much of the preparation for operation and treatment as well as the after treatment of the patient of this class.

**Simplified Diabetic Management.** By Joseph T. Beardwood, Jr., A.B., M.D., F.A.C.P. Chief of Diabetic Clinic and Associate Visiting Physician Presbyterian Hospital in Philadelphia; Physician in Chief in the Department of Metabolic Diseases, Abington Memorial Hospital; Associate in Cardiology, Graduate School of Medicine University of Pennsylvania. Herbert T. Kelly, M.D., F.A.C.P., Associate in Diabetic Clinic, Presbyterian Hospital in Philadelphia; Associate in Cardiology, Graduate School of Medicine University of Pennsylvania and in the Philadelphia General Hospital. Diets prepared with collaboration of Elsie M. Watt, A.B., formerly dietitian Diabetic Clinic Presbyterian Hospital in Philadelphia. Illustrated. Cloth. Price \$1.50.

The close observations and treatment fitting the conditions is so essential to the successful management of diabetes that we have lately had

numerous works upon this subject. The author bases this work upon his experience in clinics and private practice, and makes no revolutionary departure in the management of diabetic which is rapidly becoming almost standardized. But, in the absence of a physician the intern and nurse must be of the highest intellect if a high ratio of success is to be scored. It seems from the various phases into which this work is divided that the author has performed his task in an unusually fine manner.

**The Surgical Clinics of North America.** (Issued serially, one number every other month.) Volume 11, No. 5. (Pacific Coast Surgical Association Number—October, 1931). 279 pages with 109 illustrations. Per Clinic year (February, 1931 to December, 1931.) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1931.

The Pacific coast may always be counted upon to make an exceptionally good showing in the Surgical Clinics of North America. It is not feasible to acknowledge all the good things anyone of these issues contain, so the lack of mention of an entire subject need not be taken in a spirit of disregard or a lack of appreciation. We call attention to the "The Epidural and Transsacral Injection of Alcohol For the Relief of Pain" by Gilcreest and Mullen of San Francisco. The handling of the latter stages of malignancy is always a severe problem, very little can be done so anything offering even partial aid should not be overlooked. "Idiopathic Gangrene of the Scrotum" by Brunn and Harris, San Francisco. This deals with a rare condition. However, the treatment so nearly follows that indicated in extravasation of the urine, a terribly fatal condition, that anything offering aid in that is not to be overlooked. "Retroperitoneal Tumors" by Burger and Osborne, San Diego, deals with situations always full of surprises and therefore one of great interest to the busy surgeon. The volume contains many clinics on various types of malignancies, these too are always interesting, are always with us, therefore to be constantly kept in mind.

**The Nurse's Medical Lexicon.** For the use of Graduate and Student Nurses, of Premedical and Dental Students, and of The General Public. by Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of "A Practical Medical Dictionary," Formerly Editor of the "Medical Record." New York, William Wood and Company, 1931. Beautifully embossed in silk. 629 pages, price \$2.00.

Stedman's Medical Dictionary is one of the standards in use by students and physicians. This lexicon closely follows the arrangement of Stedman's Dictionary. It is not only extremely useful to nurses but would be found equally so to physicians.

**The Surgical Clinics of North America.** (Issued serially, one number every other month.) Volume 11, No. 4. (Mayo Clinic Number—August 1931) Octavo of 211 pages with 74 illustrations. Per clinic year, February, 1931, to December, 1931. Paper, \$12.00; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1931.

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 PENETRATION

And

FIXES THE GERMICIDE IN  
 THE TISSUES

Mercurochrome is bacteriostatic in exceedingly high dilutions and as long as the stain is visible bacteriostasis is present. Reinfection or contamination are prevented and natural body defenses are permitted to hasten prompt and clean healing, as Mercurochrome does not interfere with immunological processes. This germicide is non-irritating and non-injurious when applied to wounds.

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*prepared to do all types of laboratory tests which aid in diagnosis, including:*

Biopsy Specimens  
Basal Metabolism  
Surgical Specimens  
Animal Innoculations  
Post Mortem Specimens  
Dark Field Examinations  
Post Mortem Examinations  
Blood and Urine Chemistry  
**X-RAY EXAMINATIONS, ALL TYPES**

SEROLOGY—including Kolmer's Standard Wassermann; very sensitive Precipitation tests, Kahn, Kline's slide test; and special exclusion test useful in many cases when exclusion of Syphilis is important.

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